



Calhoun: The NPS Institutional Archive
DSpace Repository

Theses and Dissertations

1. Thesis and Dissertation Collection, all items

1980-12

Identification of causes and analysis of
techniques for reducing delinquent deliveries
in Department of Defense production contracts

Dunbar, Glen Berry, III

Monterey, California. Naval Postgraduate School

<http://hdl.handle.net/10945/17608>

This publication is a work of the U.S. Government as defined in Title 17, United States Code, Section 101. Copyright protection is not available for this work in the United States.

Downloaded from NPS Archive: Calhoun



Calhoun is the Naval Postgraduate School's public access digital repository for research materials and institutional publications created by the NPS community. Calhoun is named for Professor of Mathematics Guy K. Calhoun, NPS's first appointed -- and published -- scholarly author.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943

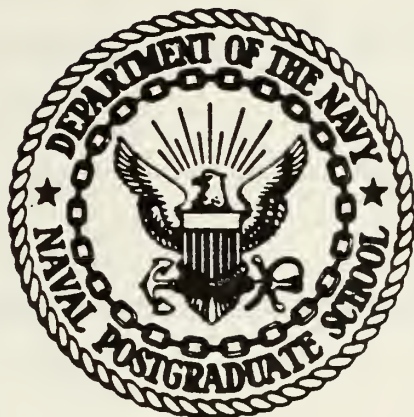
<http://www.nps.edu/library>

IDENTIFICATION OF CAUSES AND ANALYSIS OF
TECHNIQUES FOR REDUCING DELINQUENT
DELIVERIES IN DEPARTMENT OF DEFENSE
PRODUCTION CONTRACTS

Glen Berry Dunbar III

NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

IDENTIFICATION OF CAUSES AND ANALYSIS OF
TECHNIQUES FOR REDUCING DELINQUENT
DELIVERIES IN DEPARTMENT OF DEFENSE
PRODUCTION CONTRACTS

by

Glen Berry Dunbar III

December 1980

Thesis Advisor:

D.V. Lamm

Approved for public release; distribution unlimited

T196594

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS
BEFORE COMPLETING FORM

1. REPORT NUMBER

2. GOVT ACCESSION NO.

3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle)

Identification of Causes and Analysis of
Techniques for Reducing Delinquent
Deliveries in Department of Defense
Production Contracts

5. TYPE OF REPORT & PERIOD COVERED

Master's Thesis
December 1980

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)

Glen Berry Dunbar III

8. CONTRACT OR GRANT NUMBER(s)

9. PERFORMING ORGANIZATION NAME AND ADDRESS

Naval Postgraduate School
Monterey, California 93940

10. PROGRAM ELEMENT, PROJECT, TASK
AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS

Naval Postgraduate School
Monterey, California 93940

12. REPORT DATE

December 1980

13. NUMBER OF PAGES

121

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)

Naval Postgraduate School
Monterey, California 93940

15. SECURITY CLASS. (of this report)

Unclassified

15a. DECLASSIFICATION/DOWNGRADING
SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

delinquent deliveries
schedule incentives
late deliveries
schedule changes

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Approximately one in four Department of Defense production contracts are being carried in a delinquent status. These late deliveries have a value of several billion dollars, and eighty percent of the delinquent contracts are over ninety days late. The impact of these late deliveries effects many military organizations in a variety of ways. The causes of delinquency stem from actions of the Government and of the contractor. The

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Government attempts to use a number of incentives to motivate the contractor to provide timely delivery of the required items. It also utilizes a variety of procedures in an attempt to control and reduce the number of delinquent contracts. Yet a significant portion of the contracts are delinquent.

The objective of this research effort was to provide a survey study of the delinquency problem, with a particular view of stimulating further in-depth research into its various aspects.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Approved for public release; distribution unlimited

Identification of Causes and Analysis of
Techniques for Reducing Delinquent
Deliveries in Department of Defense
Production Contracts

by

Glen Berry Dunbar III
Captain, Signal Corps, United States Army
B.S., Business Administration, University of Illinois, 1971

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
December 1980

Thesis
D22825
C.1

ABSTRACT

Approximately one in four Department of Defense production contracts are being carried in a delinquent status. These late deliveries have a value of several billion dollars, and eighty percent of the delinquent contracts are over ninety days late. The impact of these late deliveries effects many military organizations in a variety of ways. The causes of delinquency stem from actions of the Government and of the contractor. The Government attempts to use a number of incentives to motivate the contractor to provide timely delivery of the required items. It also utilizes a variety of procedures in an attempt to control and reduce the number of delinquent contracts. Yet a significant portion of the contracts are delinquent.

The objective of this research effort was to provide a survey study of the delinquency problem, with a particular view of stimulating further in-depth research into its various aspects.

TABLE OF CONTENTS

I.	INTRODUCTION	7
A.	RESEARCH OBJECTIVES	7
B.	RESEARCH QUESTIONS	8
C.	SCOPE AND ASSUMPTIONS	8
D.	RESEARCH METHODOLOGY	10
E.	REVIEW OF THE LITERATURE	11
F.	KEY DEFINITIONS, ABBREVIATIONS AND ACRONYMS	12
G.	ORGANIZATION OF THE STUDY	12
II.	BACKGROUND	14
A.	FRAMEWORK	14
B.	ISSUES	16
C.	EXTENT	18
D.	IMPACT	22
E.	CAUSES	23
F.	CONTROLS AND REMEDIES	25
G.	INCENTIVES	28
H.	AN AGGRAVATING FACTOR	29
I.	SUMMARY	29
III.	DATA PRESENTATION AND ANALYSIS	31
A.	METHODOLOGY OF DATA ANALYSIS	31
B.	NATURE AND IMPACT OF THE DELIVERY DELINQUENCY PROBLEM	32
C.	CAUSES OF DELIVERY DELINQUENCIES	39
D.	DELIVERY DELINQUENCIES AS A FUNCTION OF CONTRACT TYPE, COMMODITY AND CONTRACTOR	55

E.	PREDICTING DELIVERY DELINQUENCIES	60
F.	SCHEDULE MODIFICATIONS	64
G.	TERMINATION FOR DEFAULT	69
H.	CONTROLLING DELIVERY DELINQUENCIES	72
I.	SCHEDULE PERFORMANCE	88
J.	DELIVERY INCENTIVES	91
K.	DELIVERY SCHEDULES	97
L.	FUTURE TRENDS IN CONTROLLING DELIVERY DELINQUENCIES	99
M.	SUMMARY	102
IV.	CONCLUSIONS AND RECOMMENDATIONS	103
A.	CONCLUSIONS AND RECOMMENDATIONS	103
B.	AREAS FOR FURTHER RESEARCH	108
C.	CONTRIBUTION OF THE STUDY	109
APPENDIX A	Interview Questions	111
APPENDIX B	Interviewees	114
APPENDIX C	Definitions, Abbreviations and Acronyms . .	116
LIST OF REFERENCES	118
BIBLIOGRAPHY.	120
INITIAL DISTRIBUTION LIST	121

I. INTRODUCTION

A. RESEARCH OBJECTIVES

Schedule performance of defense contractors has been poor. Across the Department of Defense, approximately one contract in four has not met its delivery schedule. Several billion dollars of goods under contract have not been delivered as specified under terms of the contract. Of those deliveries over thirty days delinquent, eighty percent were over ninety days delinquent. A multitude of factors have contributed to these interesting statistics, however the problem did not just recently develop, and may not be resolved in the near future.

The problem of delinquent deliveries in Government contracts has not been investigated from a systems approach. Various studies have examined such questions as how to measure the incidence of delinquency, how to monitor it, and how to incentivize its reduction. The central issues of causes, controls, impacts and costs have not been addressed in a single study. The objective of this research effort was to provide a survey study of the delinquency problem, with a particular view toward stimulating further in-depth research into its various aspects. To accomplish this overall objective, the nature, extent and impact of delinquency were examined. Its causes were identified,

and the current control procedures available to Government acquisition and contracting personnel were evaluated for effectiveness in reducing the incidence of delinquency.

B. RESEARCH QUESTIONS

To provide a focus for the research effort, the following primary research question was posed.

What are the causes of delinquent deliveries in Department of Defense contracts, and how can the incidence of delinquency be reduced or controlled?

From this basic question, three subsidiary questions follow:

1. What is the nature and extent of the delinquency problem?
2. What are the considerations in allowing or disallowing schedule revision or slippage in delivery requirements?
3. Can a model be developed to aid decision-making in a delinquent delivery situation?

Answers to these questions have helped to define the environment within which the problem of delinquent deliveries exists. Once the operative forces have been examined and the root causes identified, appropriate actions to reduce the level of delinquency can be defined and evaluated.

C. SCOPE AND ASSUMPTIONS

The scope of this research effort was limited to Department of Defense (DoD) production contracts of less

than major system size. Production contracts were relatively easy to identify as being on time or delinquent because of the specific nature of the item purchased. Research and development contracts were somewhat more nebulous with respect to the delivered product. Ease of identification of hardware-oriented production contracts led to that particular limitation. The procurement of major systems is controlled by the Defense Acquisition Regulations (DAR) and supplemental directives such as DoD Directive 5000.1, "Major System Acquisitions," and Office of Management and Budget (OMB) Circular A-109, "Major System Acquisitions." Such systems have been extremely complex and have involved many changes in contractual requirements, including schedule changes. The intense management of these systems has made the study of their delivery performance somewhat less meaningful than that of smaller production contracts.

Information has been gathered from many sources within the DoD procurement community. Input was received from the Army, Navy, Air Force, Defense Logistics Agency and Defense Contract Administration Services. Some of the information was strictly the opinion of the individuals interviewed. Some of the data were derived from reports issued by the various Services. It was understood by the researcher that the reports, produced from the various data bases, some of which are still being developed, implemented and tested, were not precise. They were, however,

assumed to be of sufficient accuracy to draw some general observations. It was further assumed that, although access to all data bases was not obtained, available information was reasonably representative of the actual data of all Services and Agencies.

D. RESEARCH METHODOLOGY

Due to the non-empirical, perceptual nature of the subject under study, the primary research methodology chosen was the personal interview. The structure of the interview was established via a series of questions identified during the performance of the secondary research methodology, an extensive review of available current literature. Interview questions are presented in Appendix A.

A personal interview allowed for a free flow of ideas and information. It assured thorough understanding of the intercommunication by allowing probing of fruitful ideas, questioning and rephrasing of unclear responses, and assimilation of the nuances and gestures of the interviewee. These actions were not readily available using other methodologies.

The format of the interview was identical for all sessions conducted. Following introductions, a brief explanation and review of the research topic was presented to the interviewee. Confidentiality of the source of information was offered and provided upon request. Proper name, grade, position and organization were verified.

A copy of the interview questions was provided to the interviewee to facilitate understanding of the specific questions and general flow of the discussion. To aid the interviewer, a checklist of potential answers was prepared and utilized where feasible. At the completion of the question and response period, the formal interview was closed. At this point, additional informal discussion was held and data gathered as appropriate.

All interview questions were pretested for completeness and clarity. Pretest review, comments and suggestions were obtained through the assistance of Major Jon D. Tremper, Captain Nancy Rosendale and First Lieutenant Dennis Nordgaard all of the Resources Division of the Contracts Branch of the Combat Developments Experimentation Command at Ford Ord, California.

Interviewees were selected after discussions with the various service and agency acquisition commands to determine which individuals in the organization were most knowledgeable in the research topic. The names, titles and positions of the interviewees are listed in Appendix B.

E. REVIEW OF THE LITERATURE

In the accomplishment of the literature search, resources of the Naval Postgraduate School library, the Defense Documentation Center, the Defense Logistics Studies Information Exchange and the Army Procurement Research Office were utilized. In addition, reports were obtained from the various Service commands and Agency

offices. Useful sources of information are listed in the Reference and Bibliography sections at the end of this paper.

F. KEY DEFINITIONS, ABBREVIATIONS AND ACRONYMS

In order to facilitate presentation of the material, a list of key definitions, abbreviations and acronyms has been compiled. This list is presented in Appendix C. Those who are involved in DoD acquisition and contracting activities should be familiar with the majority of the terms, but occasional reference to Appendix C may be helpful.

G. ORGANIZATION OF THE STUDY

Following this brief introduction, Chapter Two describes the legal and regulatory framework within which the delinquency problem operates. The central issues of fault, increased costs, schedule "buy-in" and incentive effectiveness are examined and discussed. The real and perceived impacts on the Department of Defense are assessed. Finally, some recent developments are identified and discussed.

Chapter Three presents and analyzes the data obtained from the interviewees. The estimated extent of the delinquency problem is assessed. The causes of the problem are identified and categorized. Considerations for further action are addressed, and finally, the availability and effectiveness of remedies and controls to reduce or eliminate the problem are described.

Chapter Four summarizes the findings, draws conclusions and makes recommendations for corrective action and further research.

II. BACKGROUND

A. FRAMEWORK

Within the business environment, there exist the legal and moral requirements to comply with the provisions of the contract. Contractual compliance includes meeting the specified delivery schedule. Failure to meet delivery schedules can very easily result in default of the contract and loss of future business.

Federal acquisition personnel are governed by the provisions of the Defense Acquisition Regulation (DAR). The DAR specifies the types of procurement actions which must occur. It will be useful to examine selected excerpts of the DAR applicable to the delinquency problem.

Delinquency is defined by DAR as actual failure to meet delivery schedule or potential failure to meet the schedule due to failure to maintain adequate progress.*
[8:25-101.3] This definition points out the two ways that delinquency, and subsequently breach of contract, may occur.

The DAR does recognize that some delays in contract performance are not the fault of the contractor. These delays are excusable and as defined by DAR: [8:7-203.11]

* References to the DAR will be annotated using the cited paragraph in lieu of page number.

. . . may include, but are not restricted to: acts of God or the public enemy; acts of the Government in either its sovereign or contractual capacity; fires; floods; epidemics; quarantine restrictions; strikes; freight embargoes; and unusually severe weather.

Excusability of delay caused by subcontractor default occurs if failure to make timely delivery "arises out of causes beyond the control of both the Contractor and the subcontractor, and without the fault or negligence of either of them." [8:7-203.11]

Another section of DAR explains what is meant by acts of the Government in its contractual capacity. If schedule delay or disruption is caused by an act of the Contracting Officer which is not within the provisions of the contract, or his failure to take the required action within a reasonable time, the contractor is not held responsible for the delay. If this happens, an equitable adjustment in cost and schedule will be made in the contract. [8:7-104.77(f)]

The status of contract performance is monitored through production surveillance activities. This includes those contract administration activities directed toward the monitoring of progress toward contract completion.

[8:25-101.1]

A contractor in a delinquent status may be identified through Government production surveillance, actual failure to meet contractual delivery requirements, or surfacing of a delinquent condition by the contractor. When a delinquent

condition is discovered, the contract must be modified or terminated under default conditions. A contract may be terminated for default if the contractor fails to meet the required delivery schedule or to make reasonable progress toward its completion. [8:7-103.11(a)]

Within this legal and regulatory framework defined as well as it is, there are still several major issues having a great impact on the Government's ability to manage the delinquency problem.

B. ISSUES

During this research, four major issues surfaced as being important in the examination of the delinquency problem. The first is that of determining responsibility for delays. In many cases, the Government is very involved in administering the contract and may inadvertently direct or cause a change in the activities of the contractor, thereby causing or contributing to a delinquency. Unexcusable delays in production, and therefore delinquencies, may be due to the purposeful action or inadvertent error by either the Government or contractor personnel. In many instances, both parties are partially responsible for the delay. The problem then becomes one of assessing the appropriate level of fault to be assigned to each party, and the proper equitable adjustment to be made in accordance with the contract provisions.

The second issue is that of cost. Identifying the applicable costs of a delinquency can be extremely complex. Some costs are directly associated with the specific contract; others are more remotely associated. Depending on responsibility for the delinquency, the unit cost of the items may increase or decrease. If the item under contract is a component of a larger system, the system costs may be increased due to the additional storage requirements and out-of-station installation. There are also hidden costs which are nearly impossible to identify. Regardless of the type of contract, the additional overhead costs due to the delay, but not covered by the instant contract, will eventually be included in future contracts with both Government and industry.

The third issue is unrealistic bidding in order to remain responsive to the bid. The delivery schedule proposed by the Government will be accepted by the contractor whether the schedule is realistically possible or just a figment of someone's imagination. As stated in DAR, "Any bid which fails to conform to the delivery schedule or permissible alternates thereto stated in the invitation for bids shall be rejected as nonresponsive." [8:2-404.2(c)] Regardless of the realism of the stated required delivery date (RDD) set forth in the solicitation notice, the contractor must accept it if his bid is to be considered responsive. This is known as "buying-in" on the schedule. [11:13-14] The Government procuring personnel generally

apply historical data to determine the production lead time and RDD. During periods of high commercial demand and increased lead times to acquire the necessary raw materials, the stated RDD may become impossible for the contractor to meet. Yet, to be considered responsive, he must bid based on the outdated RDD. [15:79]

The fourth issue of importance is that of motivation or incentive to perform the contract within the specified contractual provisions. Incentives and motivations originate from within the contract as well as from within the contractor. Theoretically, the proper incentives will motivate a contractor to meet or exceed the contractual requirements. Were this the case, delinquency would become an insignificant problem.

Having identified the regulatory framework and major issues involved, the extent of the delinquency problem will now be examined.

C. EXTENT

At the time this research was conducted, it was impossible to get an accurate indication of the extent of the delinquency problem. Each data base was at a different level of development and treated report information in a different manner. The United States Army Material Development and Readiness Command (DARCOM) uses the Commodity Command Standard System (CCSS) and reports its delinquencies by contract line item numbers (CLINS). The

Navy data base and reporting system is still in early development stages and as yet has no meaningful delinquency data. The Air Force Automated Management Information System (AMIS) is mostly completed, but the desired delinquency data was not readily available. The Defense Logistics Agency (DLA) utilizes the Standard Automated Materials Management System (SAMMS) and reports delinquencies by CLINS. The Defense Contract Administration Services (DCAS) currently reports delinquencies by contracts, but soon plans to begin using SAMMS.

Not only are the reporting criteria different, the reports themselves are different enough that accurate comparison is at best general in nature. Timing is another hinderence to accurate and comparable reporting. The delay of entry into the reporting system caused by the flow of paperwork varies among organizations. Actual delinquencies may not be entered into the data base because of paperwork delays. Conversely, some items listed as delinquencies may have already been delivered, but the data has not been expunged from the data base. Review and updating of the information systems is a costly and time-consuming process, and thus the systems are generally out of date.

Even with these problems, an examination of the available reports gives an approximation of the extent of the delinquency problem. The data presented below were derived from reports available from the commands or

agencies listed. DARCOM data were derived from the Production Surveillance Report of September 1979. DCAS Management Area (DCASMA) Pasadena data came from the Production Administration Delinquency Report (PADR) of 9 October 1979. DCAS Headquarters data came from the Production Performance Data report of November 1979. DLA data came from the Contract Delinquency Percentages report of September 1979. Reports were not available from the Air Force Systems Command (AFSC) or the Naval Material Command (NAVMAT).

Table 1. 1979 Delinquency Rates

<u>Command/Agency</u>	<u>Delinquency Rates</u>
DARCOM *	26.2 %
DLA *	55.7 %
DCAS HQ **	14.9 %
DCASMA Pasadena **	23.5 %

* by CLINS

** by contracts

NOTE: Over 50% of DLA contracts were for direct vendor delivery to the user. This contract-type has experienced much higher delinquency rates than other types.

From the data presented in Table 1, it would appear that approximately 15-30% of all contracts or line items are in a delinquent status.

When the aging of delinquent contracts is examined, it can be seen in Table 2 that the majority of such contracts

have been delinquent for over ninety days. This basically says that once a contract is in trouble, it tends to remain in that status for some time. DARCOM further breaks out delinquencies by thirty-day age-groups up to 420 days. DARCOM reports that 32% of all delinquent deliveries are over 420 days past due.

It is also interesting to note the dollar values of the delinquent items as indicated in Table 3. Only DARCOM's report listed the dollar values involved.

Table 2. 1979 Delinquency Rates by Age Groups

<u>Command/ Agency</u>	<u>Aging by Percent</u>		
	<u>31-60 days</u>	<u>61-90 days</u>	<u>over 90 days</u>
DARCOM	8.9	8.1	83.0
DLA	32.8	19.2	48.0
DLA HQ*	—	—	—
DCASMA Pasadena**	30.9	25.7	43.4

*not available

**adjusted for reporting differences

NOTE: Items are not listed as delinquent until they are over thirty days past due to account for paperwork delays.

Table 3. 1979 Delinquent Dollar Value

<u>Delinquent Items by:</u>	<u>Approximate Dollar Value In Billions</u>
Contracts	\$ 5.04
CLINS	1.91
Dollars*	0.52

*actual delinquent quantity times
purchase unit price

Based on the assumptions stated in Chapter 1, reasonably accurate and representative data, an appreciation for the extent of the delinquency problem can be gained. For DoD as a whole, it could be stated that approximately 15-30% of all items under contract have not been delivered on time. These items have a dollar value of several billion dollars. The delinquency of items under contract causes significant problems not only for the procurement personnel, but for the operating commands as well.

With the major issues identified and the extent of the problem examined, the possible impact of delinquent deliveries will now be explored.

D. IMPACT

The literature discusses the impact of delinquent deliveries from two aspects, mission-oriented and cost-oriented effects. Late delivery of parts or components needed for maintenance of existing weapons systems or operation of new systems can cause impaired effectiveness of the system. For new items being fielded, a late delivery of a component can delay introduction of the item to field units; or the new items may be delivered in an incomplete condition pending receipt of the delinquent component. Weapons systems operating at less than full capability can easily degrade the ability of the unit to perform its full mission. [7:D-2] This reduced operational capability and unit readiness may

cause vital missions or training activities to be delayed or cancelled. [4:1] In many units, incomplete or inadequate equipment and training act directly to reduce the level of unit morale.

Delinquent deliveries of needed items also tend to increase costs. If systems are being held pending receipt of an item, additional storage and handling costs will be incurred. If the system is fielded in an incomplete configuration, excess out-of-station installation costs are incurred. Emergency corrective actions may be required pending arrival of the delinquent items. Scheduled operations or maintenance may have to be slipped. All of these activities can lead to higher costs. [7:D-2]

E. CAUSES

What are the root causes of delinquencies and why do they occur?

The causes of delinquency identified in this section use the literature as a baseline. No conclusions should be drawn as to the completeness or order of importance of the causes listed. As discussed earlier in this Chapter, a delinquent situation may arise through fault of the contractor, fault of the Government or through factors not under the control of either party. The causes of excusable delay have been previously listed, and non-excusable delays are the real focus of this research. Government personnel may cause a delay in production and

delivery by taking action or by failing to take action. Changes in customer requirements, engineering change proposals, design changes, program changes and inadvertent constructive changes can all cause delay and disruption, and hence affect the delivery schedule. Changes by the Government in the rate of work performed by the contractor can also delay or disrupt the delivery schedule. These changes include acceleration, stretchout, suspension of work and issuance of a stop work order. [3:161-171]

Delay or disruption of a production and delivery schedule may also be caused by the failure of the Government to act or failure to act in a timely manner. For example, failure to inspect work in a timely manner, approve drawings or make progress payments can all have a major impact on contractor ability to meet delivery schedules. [16:553] Data packages provided by the Government may be incomplete or simply impossible to perform. If Government furnished materials or equipment, are provided, late or incomplete delivery of the equipment or materials, or unservicability of equipment will have a decided adverse impact on the contractor's ability to meet the delivery requirements. [13:30]

The contractor may also be at fault in a delinquency situation. The causes may be internal to his organization or external, but still under reasonable control. External causes include such things as changes in production priorities

requested or directed by outside agencies, production conflicts with prior commitments [13:30], late receipt of materials caused by excess demand, and transportation tie-ups or subcontractor default when the desired item or service was available from other sources. [1:437]

Causes of delivery delays internal to a contractor's organization are primarily centered around management activities. Poor planning for production scheduling, manpower needs, productive capacity, financial resources and backlog of orders can all delay timely delivery. Misunderstanding of contractual requirements or unanticipated complexity of the manufactured item can cause excessive delays. Poor quality control procedures which cause extensive rework efforts can slow production rates. Unnecessary labor problems caused by management can also affect production timing. [13:30] Basically all contractor caused delivery delays are the result of poor management, whether it be planning or controlling.

Since some of the causes have been identified, the alternative controls or remedies should be examined to find methods of reducing delinquencies.

F. CONTROLS AND REMEDIES

In the literature, there are a number of suggestions regarding application of controls or remedies to reduce the incidence of delinquencies. There are two phases of the contract where the roots of the delinquency problem

can occur, pre-award and post-award. Two types of controls or remedial actions can occur. Controls which are supportive in nature tend to reduce delinquencies by encouraging on-time deliveries. Controls or remedies that are punitive in nature tend to reduce delinquency by discouraging late deliveries. Traditionally, negative or punitive incentives have been applied to schedules.

In the pre-award phase of the contract, many actions can be taken in order to attempt to reduce the possibility of a delinquency. For raw materials or components having low availability or long acquisition lead time [17:252-253], consideration can be given to requiring the contractor to make the item rather than buying it through a subcontractor. [12:B-2-76] If compliance with the delivery schedule is vital, a multiple incentive clause can be inserted in the contract to provide monetary incentive to the contractor for meeting or exceeding the delivery schedule. [10:185] Appropriate consideration can also be given to setting realistic delivery schedules for items whose raw materials have long lead times.

An effective pre-award survey and conference can be very useful in identifying potential problems and clarifying those potential areas requiring interpretation. Free and open communication is a key to the success of the survey and conference in reducing the incidence of delinquency. [13:30-32] As needed, the Government could give the

contract a high rating under the Defense Materials System or the Defense Priorities System to speed acquisition of needed materials. [13:33] In order to give high Government attention to the administration of the particular contract, a high level of production surveillance category and criticality designator code can be assigned. [13:34] A careful review of potential contractors' production schedules can be made, and special attention can be paid to the past performance record of the contractor. [14:7-8] The liquidated damages clause can also be used to increase the attention of the contractor on the importance of meeting the delivery schedule. This requires that the extent of damages sustained due to a delinquent delivery be determined prior to the award of the contract and included in the clause. [8:1-310]

During the post-award phase of the contract, control actions include open communication, retroactive assignment of Defense Materials or Priorities System designators, providing progress payments tied to delivery performance and bilateral modification of the delivery rate within the schedule to allow for steady rather than batch production runs. [5:50-52] Increased production surveillance may cause the contractor to apply greater attention to the desired work effort, thereby reducing the possibility of a delinquency. Once a delinquency has occurred, a price adjustment may be negotiated to adjust for the

extended delivery schedule. The liquidated damages clause will begin to be enforced. Finally, the various steps of the termination for default procedures may be applied. Use of the cure notice, show cause notice and forbearance may be used to focus the attention of the contractor on the desired results. The final step is actual termination for default of the contract. [13:34]

Even with the use of these controls or remedies, there must be some incentives to motivate the contractor to reduce the incidence of delinquency.

G. INCENTIVES

Incentives for the contractor to perform within the schedule requirements may be provided by the contract or by forces outside of the contract. Extracontractual incentives include good corporate and personal image or reputation and follow-on business. [2:2A10-2A11] Contractual incentives include profit, contract payment, progress payments and schedule incentive provisions. Other contractual incentives are included in the default and liquidated damages clauses.

The Department of Defense noted in 1965 that the traditionally negative incentives of termination for default, excess procurement costs charged to the contractor and liquidated damages have had little positive effect in reducing the incidence of delinquency. [9:31]

H. AN AGGRAVATING FACTOR

A situation which will have an increasing impact on the delinquency rate is the rapidly increasing lead times for some materials and components. As lead time increases, the probability of not maintaining adequate support for operating systems looms larger. [6:2-3] As of February of 1980, the lead times for forgings, castings, bearings, machining capacity, semiconductors and metals such as titanium, cobalt and chromium have increased dramatically. Lead times for bearings and fasteners have increased to thirty to ninety weeks; some forgings to over one hundred weeks. In the last year, the lead time for integrated circuits has more than doubled to a current delivery time of twelve months. [18:80-83] As the lead times expand even faster, the incidence of delinquency is likely to increase.

I. SUMMARY

Contractual agreements between Government agencies and contractors are governed by DAR. This regulation carefully defines and describes delinquency, fault determination and resultant contract adjustments. This study of the delinquency problem identified four major issues. These are the issues of fault determination, incurrence of increased costs, contractor acceptance of unrealistic delivery requirements and effectiveness of incentives to meet delivery schedules. Available data indicates an

overall delinquency rate of 15-30% and a dollar value of delinquent items of over one-half billion dollars in one service alone. The impact of delinquent deliveries is purported to be far-reaching. A multitude of causes of delinquency have been identified, and a wide variety of controls or remedies have been suggested to cope with the problem. The effectiveness of contractual incentives has been questioned. The additional problem of rapidly increasing lead times for required raw materials and components serves only to aggravate the problem of delinquency.

Chapter Three will present the results of this research effort and an analysis of those results. Chapter Four will present the conclusions and recommendations resulting from the analysis.

III. DATA PRESENTATION AND ANALYSIS

A. METHODOLOGY

The open-ended nature of the questions precluded pre-interview categorization of the potential responses. After completion of the interviews, responses of the individuals were examined for commonality across all organizations. They were also examined for peculiarity to a single organization or to buying commands as opposed to headquarters commands. The buying commands included the Armament Materiel Readiness Command (ARRCOM) and the Tank-Automotive Materiel Readiness Command (TARCOM). The headquarters commands included DARCOM, NAVMAT, AFSC, DLA and DCAS.

Where adequate information was available in the literature, comparisons were made with the data gathered from the interviews for consistency. Where differences existed, an attempt to identify the reasons for the difference was made.

To facilitate a clear presentation, discussion and analysis of the interview data, responses to the questions will be presented in order. Where meaningful, the response data will be presented in graphical or tabular form. Examples will be provided to clarify the nature of the responses.

During the interview period, seventeen individuals from seven organizations provided responses to the questions. Of the seven organizations, five were headquarters and two were buying commands. The distribution of individuals in the various organizations is as follows:

<u>Headquarters</u>		<u>Buying Commands</u>	
<u>Organization</u>	<u>Individuals Interviewed</u>	<u>Organization</u>	<u>Individuals Interviewed</u>
DARCOM	2	ARRCOM	5
NAVMAT	1	TARCOM	<u>3</u>
AFSC	1	Total	8
DLA	3		
DCAS	<u>2</u>		
Total	9		

B. NATURE AND IMPACT OF THE DELIVERY DELINQUENCY PROBLEM

Question 1 - What is the estimated extent, in both percentage and dollar terms, of delinquent deliveries of goods in DoD production contracts?

The purpose of this question was to assess the awareness of the extent of the delinquency problem. Where reports were available, the interviewees referred to the report; where unavailable, estimates were given. The responses were as follows:

<u>Organization</u>	<u>Response</u>	<u>Report Available</u>
DARCOM	26.2%/\$4 billion	yes
NAVMAT	30-40%/unknown	no
AFSC	0%/\$0	no
DLA	57%/unknown	yes
DCAS	14.9%/unknown	yes
ARRCOM	54%/\$520 million	yes
TARCOM	42%/\$989 million	yes

The DARCOM reporting system was the only one listing dollar values for delinquencies. ARRCOM and TARCOM are major subordinate commands of DARCOM. When the AFSC interviewee was questioned on the response of zero percent, the reply was that as the delivery date approached and the items were not on hand, the required delivery date was moved back, therefore the items were not delinquent. The NAVMAT response was an estimate based on the experience of the interviewee. The responses of ARRCOM and TARCOM are higher than that of DARCOM, but are consistent as the DARCOM figure is a composite of five major subordinate commands buying production items.

The responses obtained from the interviews are consistent with the literature base as the same reports were used. The estimate of NAVMAT is slightly higher than the 15-30% overall estimate presented in Chapter II, but without an information system in operation the estimate must be based solely on the experience of the interviewee. The AFSC method of reducing the delinquency rate to zero by continually changing the delivery date seems to be a poor way to keep management attention

focused on the problem. Elimination of the indication of a problem, the delinquency rate, by redefining the requirements does nothing toward solving the problem. It merely seems to cover the fact that a delinquency problem exists.

From the responses to Question 1, it appears to the researcher that awareness of the extent of the delinquency problem is directly related to the operation of an information reporting system. Of the reporting systems in operation, only the DARCOM system provided information on the dollar value of delinquent items.

Question 2 - What is your goal or standard for delinquent deliveries (in percentage or dollar terms)?

Question 3 - How was this goal or standard established?

Question 2 and 3 were an attempt to identify the organizational standards for the incidence of delinquency and the reasoning behind the goal. The responses will be presented and analyzed together. All of the individuals interviewed commented that the ideal goal for delinquency rates was zero percent, but this goal was not realistically attainable. Responses to Questions 2 and 3 were as follows:

<u>Organization</u>	<u>Goal</u>	<u>How Established</u>
DARCOM	15%	By consensus of management
NAVMAT	None established	
AFSC	None established	
DLA	*	10% less than previous year actual rate

DCAS	None established	
ARRCOM	15%	Set by DARCOM
TARCOM	15%	Set by DARCOM

*DLA has established separate goals for each of its supply centers. They are:

<u>Supply Center</u>	<u>Goal</u>
Defense construction	35%
Defense electronics	45%
Defense personnel (medical)	54%
Defense general	52%
Defense industrial	54%

The DARCOM goal of 15% was established by consensus of management as to what constituted a realistic and attainable level of delinquency. The ARRCOM and TARCOM goals were passed down from headquarters to the major subordinate commands. The goals established for the DLA supply centers as ten percent less than the actual delinquency rate of the previous year provide a dynamic goal which changes with actual performance.

Goals should serve to motivate organizational personnel to strive toward the desired condition. A goal must be attainable if it is to serve as a motivator. Goals should also be reviewed periodically and revised if necessary. The mere existence of a goal can indicate some level of management interest; conversely, lack of a stated goal can give the impression of lack of management interest.

Question 4 - What do you perceive to be the impact of delinquent deliveries to the Government, prime contractors and subcontractors?

The individuals interviewed perceived no significant impact on prime contractors or subcontractors. Responses from the headquarters organizations perceived no impact on prime and subcontractors; the two buying commands perceived only minor impact in the form of possible loss of profit on fixed-price contracts. The reasons for this perception will become clear in these responses to Questions 12 and 16. Discussion and analysis of these responses will be integrated with the presentation of responses to Questions 12 and 16.

Responses to the question of impact on the Government centered around the three issues of unit readiness, increased costs and customer service. Responses were as follows:

<u>Impact</u>	<u>Responses</u>	<u>Level</u>
Readiness:		
no readiness impact	9	Headquarters
decreased unit readiness	8	Buying Cmds
Increased costs:		
increased costs of items	3	Headquarters
increase in hidden costs	8	Both
increased storage costs	5	Buying Cmds
off-site installation costs	5	Buying Cmds

Customer service:

increased organizational workload	3	Headquarters
less timely response to customer needs	3	Headquarters

Responses to the readiness issue indicate to this researcher that the functionally closer an organization is to the ultimate user, the clearer will be his perception of the user's problems. The buying commands work more closely with the user of the procured items than do the headquarters elements. This makes the buying command more sensitive to the impact of delinquency on the user.

Individuals from both headquarters and buying commands perceive the increase in costs due to delinquency. In cost-type contracts, delay in completing the required work will increase costs of labor and overhead charged to the contract. This would not directly increase costs in fixed-priced contracts, however the Government will pay for them in an indirect manner. Delay of work completion will not increase the price of the current fixed-price contract, but it will cause an increase in later contracts. Fixed costs, general and administrative costs and other overhead costs incurred during the delinquent period of a contract will not be covered by that contract, but will certainly be included in determining prices for future contracts. These hidden costs will eventually be paid for by the Government in the form of higher unit costs of the item or others manufactured by that contractor.

Some delinquent items may cause an increase in storage costs pending arrival of a component. For example, an artillery round which is complete except for a component of the arming device may be accepted by the Government pending arrival of the missing part. The incomplete round will have to be stored and secured until such time as it is completed. When the part for the arming device arrives, it can be installed in the round at the storage location or at the assembly plant. Both of these options will be more expensive than installation during initial assembly of the round. If installation is made at other than the original assembly site, additional off-site installation costs will be incurred for the extra transportation and labor costs.

The researcher noted that the types of costs cited by the headquarters organizations are of a general nature of interest to a higher level of management. The costs mentioned by the buying commands are of an operational nature. This variance of perception is a common organizational phenomenon.

The responses addressing customer service centered around the customer service available from the limited manpower resources of the procurement organization. Delinquencies require increased attention of procurement personnel. This increased workload allows less time to be spent on other requirements. Response time to new

customer needs increases, and the overall level of customer service decreases. The available manpower levels do not respond rapidly to changes in workload. The Government's seeming requirement of more and more output from less and less resources holds equally true for procurement organizations.

C. CAUSES OF DELIVERY DELINQUENCIES

Question 5 - What are the causes of delinquent deliveries in both general and specific terms, within the classifications of Government caused, contractor caused and other? (in order of importance)

The causes of delinquency described by the interviewees were many and varied. The specific circumstances of each individual delinquency is slightly different, but are close enough to fit into the categories listed in the following chart. Responses are divided between Government caused and contractor caused; other causes were not listed by the interviewees. The number of individuals who mentioned each cause is listed under the type of organization to which he belonged, headquarters or buying command. The extent of each of these causes in contributing to the overall level of delinquency was not investigated, but the researcher infers the relative order of importance of a cause from the number of times that the response was received.

<u>Causes</u>		
<u>Government caused</u>	<u>Headquarters</u>	<u>Buying cmd</u>
Unrealistic RDD	6	8
Technical data packages incomplete or out-of-date	2	5
Government furnished materials, equipment or tooling late or damaged	1	5
Changes in configuration, or engineering change proposals	3	3
Delays in processing paperwork	4	—
Lack of adequate inspection or acceptance criteria	2	—
<u>Contractor caused</u>		
Late receipt of materials	4	8
Poor or over-optimistic planning for production, capacity or backlog	5	5
Poor management and lack of follow-up	3	5
Schedule buy-in	3	5
Misunderstood contract	—	3
Economic factors	1	—

All of the individuals interviewed, except from DCAS and NAVMAT, mentioned that unrealistic required delivery dates on contracts was a major cause of delinquent deliveries. Required delivery dates (RDD) are specified by the originator of the procurement action, the user. This RDD is checked by the buying command for reasonableness. If reasonable, the RDD is used on the contract;

if unreasonable, the buying command coordinates with the requisitioner for possible modification of the RDD. The buying command does not unilaterally change the RDD without permission of the user. The buying command consults past purchases of the same or similar items to determine the reasonableness of the RDD. If the past purchase was recent, the RDD may be attainable by the contractor. If the lead time for availability of an item has increased since the last purchase, the RDD may not be reasonable. For example, the last purchase of a certain item requiring integrated circuits was over a year previous to the current requirement. Delivery time on that contract was six months, therefore an RDD of eight months was thought to be reasonable. Currently, the lead time for contractor acquisition of the integrated circuits is nearly twelve months. The contract will be carried as delinquent until delivery of the item to the Government.

One individual stated that for new items or those not purchased recently, he would occasionally make informal telephone inquiries to contractors in order to determine what current lead times are for specific items and what a reasonable completion period would be. By using that information in determining the delivery schedule for the solicitation document, the possibility of a delinquency is reduced. He also stated that with the current workload, this action could not be taken on all contracts.

The researcher feels that the informal check is a viable alternative in special cases. The literature pointed out several items and components with increasing lead times. These items and others discovered through experience could be monitored and checked prior to issuance of the solicitation.

Problems with technical data packages were mentioned by seven of the interviewees as a cause of delinquency. For noncommercially produced items, the Government often maintains the technical data package for production of the item. When such an item is purchased, the technical data package is provided to the contractor. The original producer of the item and preparer of the technical data package may, for some reason, not have provided complete information. Some symbols used in-house may be common only to that company and would not be understood by another firm. A mistake may have been made in the preparation of the data. If an item has been purchased over a period of time, the manufacturing technology may have changed. One of the individuals interviewed stated, "Technology advances, technical data packages don't." This points out a potential problem with the use of technical data packages. They must be maintained in an up-to-date, complete condition if they are to be used efficiently by contractors. A mistake or omission may cause a delay in manufacturing until the deficiency is corrected. A

change in technology may cause increased set-up time for the contractor's production facilities to produce in accordance with the technical data package.

An example of the effect of an incomplete data package occurred during the procurement of a component for a microwave radio. The original producer provided the technical data package, but did not include information of a proprietary nature. A subsequent procurement of the item was awarded to another firm who was provided the technical data package. Lacking the proprietary data, they could not manufacture the item in a satisfactory manner. The contract finally became delinquent and was terminated. The reprocurement was then placed with the original firm more than a year after the initial reprocurement attempt.

A large number of the multitude of items purchased by the Government are strictly military in nature and are not routinely produced in the commercial market. Many of these items have technical data packages. The effort required to check them all for completeness, accuracy and clarity is quite large. In addition, updating the packages to be consistent with current technology advances increases the already sizeable task. Manpower availability within the procurement organizations appears to be insufficient to accomplish this task in addition to their other duties. Increased emphasis on buying commercially produced items, as outlined in Office of Management and Budget Circular A-76 entitled "Policies for Acquiring

Commerical or Industrial Products and Services for Government Use," may decrease the need for maintaining the current quantity of technical data packages. This will not, however, eliminate the need to continually update the technical data packages.

Six of the individuals interviewed stated that a cause of delinquent delivery is the delivery of Government furnished materials, equipment or tooling after the agreed upon date or in a damaged condition. This can occur when a transportation problem prevents timely delivery, higher priority delivery requirements cause a delay or an excess of requirements over manpower resources create a backlog of shipments to contractors. Equipment or tooling can be accidently damaged during movement or storage. For example, in the production of a component for an armored vehicle, a special type of tooling was needed by a contractor. Although the shipment was delivered on time, the tooling had been damaged in transit. Replacement of the tooling took several months; consequently, the contract was delinquent by several months.

Late or damaged Government furnished material, equipment or tooling is discussed in the literature base and has been included in the four most-mentioned Government caused reasons for delinquency. It seems to the researcher that this problem should be readily solved by the application of sound logistical management of the Government

furnished items. The reason for this deficiency was not explored by the researcher, nor was the in-depth study of the reason within the scope of this study.

Changes in the requirements during production can cause a delay in completion of the items. Six of the individuals interviewed stated that engineering change proposals (ECP) or configuration changes of components can cause delinquent situations. ECP's may be proposed by the Government or by the contractor. Once they are approved and directed, the contractor must make the appropriate changes in the production operation or in the plans. Either action will take time to implement. A change may speed production, slow it down, or have no effect on it. Where any delay is imposed on the contractor's production schedule, the potential for a delinquency exists.

Changes in the configuration of a component can cause the same types of delay. These changes are usually directed in support of changes to a major system. Eliminating changes to systems or components could certainly reduce the incidence of delinquency, but it would also limit the flexibility to adjust the requirements to meet changing needs. A conscientious effort to fully define the requirements and thus minimize changes would cause less delay in the production process.

The literature discussed ECP's and configuration changes as causes of delinquencies; the research has indicated

that it is one of the four most-mentioned reasons. To maintain flexibility in defining requirements and to allow for changes to improve the effectiveness or efficiency of the item being produced, changes are necessary. At the same time, control over the changes is also necessary.

The fifth reason for Government caused delay is that of administrative delay, and was mentioned by four of the interviewees. The delays involved in timely processing of paperwork may come from many sources. Approval of plans and drawings may be delayed by a high level of workload at the contract administration office. Late issuance of progress payments to the contractor could delay his acquisition of needed raw materials, thereby delaying completion of the contract. Where approval of the use of subcontractors is required by the Government, an unreasonable delay in granting or denying that approval can delay the acquisition of needed items.

For example, one individual cited a contractor that was delayed two months pending approval of a minor electrical wiring change which would increase the effectiveness of the item. Each time he inquired as to the status of the change, he was told it would be forthcoming soon. As it turned out, the engineer who was supposed to approve the change had been on vacation for six weeks and had not caught up with his accumulated workload.

Although this cause of delay was mentioned only lightly by the available literature base, the researcher feels that it is an important factor. As the paper documentation for all contract actions becomes increasingly important, the total mass of documentation handled by a procurement agency increases tremendously. Without similar increases in manpower resources, the individual workload increases. Any disruption in the processing of the paperwork can easily cause an increase in the backlog of required actions, and thereby cause some delay in completion of some contracts.

Two of the individuals mentioned that a lack of adequate inspection and acceptance criteria for some new items has caused some contracts to be delinquent. Although this has occurred in only isolated cases, it may be indicative of a potentially larger problem. For example, as a newly developed electronic component reached completion and was ready for inspection by Government personnel, the inspector had not been provided guidance as to the required inspection criteria. While the request for this information went to the appropriate department for development of criteria, the contract moved into a delinquent status. Adequate preparation of the criteria before completion of the contract would have eliminated this delay.

The literature base did not discuss this type of delay as a cause of delinquency. It is unknown by the researcher if this is a recent development or an isolated incident that occurred recently enough to remain in the minds of the interviewees.

Not all delinquencies are caused by the Government; some are caused by the contractor, others by factors beyond the control of either party. Twelve of the individuals interviewed stated that late receipt by the contractor of raw materials and components is a major cause of delinquencies. This late receipt of materials from vendors or subcontractors may result from several circumstances. Extended lead times for some items may be due to a high level of commercial demand for the item, non-availability of a regular supply for the material, or lack of industrial capacity to meet the demand. A change in delivery priority by a vendor can also cause the required materials to be late.

For example, one interviewee described a delinquency by a small business as being caused by a vendor change in delivery priority. The small contractor provided only a small percentage of the total business of a large foundry. While his order was awaiting completion, a large customer of the foundry requested urgent delivery of a special order. The foundry changed the priority of the orders to accommodate the larger customer. The small business received his castings well after the originally promised date and was consequently unable to complete the Government contract on time. His contract went into a delinquent status. As the interviewee stated, "Sometimes the little guys don't have much clout with the big fellows."

In addition to the reasons for late receipt of materials listed by the interviewees, the available literature also mentioned transportation tie-ups, production disruptions and severe reductions in availability of raw materials.

The researcher feels that a multitude of reasons exist for causing late deliveries of materials. Some are directly responsible for the delay; some are very indirectly responsible. But any unanticipated delays in receiving required materials can certainly have a direct impact on a contractor's ability to complete the contract on schedule.

Ten of the seventeen individuals interviewed listed poor or overoptimistic planning by the contractor as a major cause of delinquencies. Three specific types of planning were mentioned as being unrealistic. First, production planning is occasionally poor in that the anticipated ease and efficiency of manufacturing an item fails to materialize when the planned production process is actually implemented. Second, planned productive capacity of the contractor's organization often cannot be realized due to unexpected inefficiencies or maintenance problems. Third, the backlog of orders accepted by the contractor in order to maintain a steady flow of work and revenues periodically gets larger than what can be reasonably produced and delivered in a timely manner.

For example, a contractor for repair parts on an armored vehicle accepted a large contract based on what

turned out to be an overly optimistic estimate of maintenance downtime of his machinery. During production of the contract, the machine downtime far exceeded the original estimate. Insufficient slacktime was allowed to account for the downtime and the contract went into a delinquent status.

The literature base also mentioned poor planning for availability of financial and manpower resources. From the interview data, the researcher would infer that these do not presently cause significant problems. Adequate availability of financial resources can become difficult to obtain during periods of high interest rates or tight credit controls. Manpower availability is very dependent on the local economic situation in the contractor's area.

Unless plans for production, capacity and backlog are widely divergent from normal historical levels, over-optimism can be very difficult to identify and document. Poor planning can be caused by lack of experience and deficiencies can often be spotted and corrected very early in the production cycle.

The third major reason for contractor-caused delinquency is simple poor management and lack of follow-up of ongoing activities. Eight of the seventeen interviewees listed this as a major reason. This is a somewhat general comment, but is used to specify management of operational activities of the firm and exclude the planning function. For example,

one command was checking the status of a delinquent contract. The contractor stated that he had not yet received his raw materials from the vendor. In checking with the vendor, the Government found that the materials had been shipped six months previously. Further inquiry found that the contractor's receiving department had received the materials six months previously, but had failed to report the receipt. The contractor failed to follow-up on the perceived late delivery by checking with the vendor. Consequently, his delivery to the Government was delinquent due to poor management by the contractor.

There are a multitude of variations of poor management. Throughout the production process, from purchase of raw materials to shipment of the finished goods, many opportunities exist for poor management to cause delays in production. The duty of Government acquisition personnel is to manage contracts, not to manage contractors. While poor management by the contractor is not an excuse for delinquencies, it is certainly one of the causes of delinquent contracts.

Schedule buy-in, as described in Chapter II, occurs when a contractor responds to a solicitation and claims that he can meet the required delivery schedule, even though he knows it is unreasonable. Once he has been awarded the contract, he will attempt to get a schedule extension or allow it to be declared delinquent and hope the contract will not be terminated. Eight of the individuals

interviewed listed schedule buy-in as a cause of delinquency. Schedule buy-in is difficult to identify because of the question of intent. If the contractor realistically believed that he could meet the delivery schedule and it was his intent to do so, then buy-in did not occur. If on the other hand, the contractor knew he could not meet the delivery schedule, but bid in a responsive manner with the intent of getting schedule extensions or being in a delinquent status, then a buy-in has occurred.

Schedule buy-in is closely associated with the problem of unrealistic RDD's quoted by the Government. In order to remain eligible to receive the contract, a contractor's bid must be responsive to the solicitation. If an unrealistic RDD is incorporated in the solicitation, in order to get the contract, the contractor feels he must buy-in. It appears to the researcher that the first problem drives the second one. If that is true, a reduction in the Government's use of unrealistic RDD's could lead to a reduction in the incidence of schedule buy-ins by the contractors.

The fifth contractor-caused reason for delinquencies was identified by three of the interviewees. That reason is a simply misunderstood contract. This occurs when the contractor bids on and is awarded a contract that he has failed to completely understand or analyze. The extra time involved in restudying the requirements and replanning their accomplishment can directly lead to a delinquent

situation. For example, one contractor was awarded a contract requiring the performance of a milling operation. Although the contractor had mills, he had not taken the size of the item into account. The item to be milled was too large for his machines and he had to subcontract the milling operation. The time involved in finding a subcontractor who had the capabilities needed and getting the work scheduled and accomplished drove the contract several months into delinquency. The misunderstanding of the requirements of the contract directly resulted in a delinquency.

The literature base identified this problem, but did not discuss it in depth, nor was it identified as a particularly major cause of delinquency. The three individuals who identified this cause were from the same organization. They may well have recently experienced the case described above, and so mentioned it during the interview.

The final cause of delinquencies related to actions of the contractor is that of economic factors operative in the business environment. Only one individual mentioned economic factors, and it is a rather broad statement and can encompass many things. The specific aspects of economic factors addressed here are the effects of rising interest rates and inflation. Rising interest rates drive up the cost of maintaining large on-shelf inventories

at all levels. Lower inventories can lead to a lower ready availability of materials and components, which in turn means longer lead times. This can lead directly to a delinquency situation.

Another effect of inflation becomes evident in one example described in an interview. A contractor who had been awarded a contract approached the Government with the request to have the contract terminated. Between the time the bids were submitted and the time of contract award, inflationary pressures had increased the cost of the needed raw materials to a level where the contractor would be in a position of possible bankruptcy. The contract was terminated and reprocurement action was initiated. Had the contractor waited until the contract was delinquent to request termination, Government acquisition of the required item would have been delayed even longer.

Although not addressed by current literature, the researcher feels that economic factors of rising interest rates and inflation will begin to have greater impact on the incidence of delinquencies. Rising interest rates should make expansion and investment more difficult for smaller contractors. Tightening credit could make it more difficult to obtain financing for normal operations and special production projects. This could in turn cause an increase in the incidence of delinquencies.

Although it does not show up in the chart of responses listed earlier, the researcher noted an interesting and perhaps significant phenomenon. None of the individuals from the service commands (DARCOM, NAVMAT and AFSC) mentioned contractor-caused problems as reasons for delinquencies. Their basic daily routine is that of managing the Government acquisition organizations. This does not include close contact with contractors. The researcher feels that because of their orientation toward the Government buying organizations, the level of perception of contractor-caused problems is lessened. All of the individuals who mentioned causes of delinquency occasioned by the contractor were from organizations having greater day-to-day contact with the contractors. These individuals (from DLA, DCAS, ARRCOM and TARCOT) seem more attuned to the interplay of Government-contractor activities. From these observations, the researcher infers that an individual's organizational position and duties have a great influence on an individual's perception of the problem.

D. DELIVERY DELINQUENCIES AS A FUNCTION OF CONTRACT TYPE,
COMMODITY AND CONTRACTOR

Question 6 - Is there any particular contract type that has been experiencing delinquency problems?

The responses to this question were varied and included some qualifications. The responses varied from fixed-price contracts experiencing higher delinquency rates to lower delinquency rates. The results of the responses are as follows:

<u>Response</u>	<u>Frequency of Response</u>
no difference	10
fixed-price competitive --higher	5
fixed-price --lower	2
direct vendor deliveries --higher	3
first production contracts --higher	2

Of the seventeen individuals responding to the question, ten perceived no difference in delinquency rates between various types of contracts. A typical response from these individuals was, "No, there's no difference as far as delinquencies are concerned."

Five of the individuals interviewed stated that competitively placed fixed-price contracts experienced a higher rate of delinquency than other types of contracts. In competitive contracts, the Government specifies the delivery requirements, and the contractor must respond accordingly if his bid is to be responsive. Noncompetitive contracts allow for negotiation of the contract provisions, therefore the contractor has some input to and influence over the delivery requirements. Because of this, the individuals stated, competitive fixed-price contracts have a higher incidence of delinquency.

Two individuals stated that fixed-price contracts generally have lower rates of delinquency than other contract types. They said that the majority of fixed-price contracts are for items of known and well-established

production technologies. For this reason, fixed-price contracts have lower delinquency rates.

DLA interviewees noted that although they perceived no difference between contract types, those contracts containing provisions requiring the contractor to deliver the items directly to the using unit have a higher incidence of delinquency. They stated that this occurs for two reasons. First, the contractors are not fully aware of the various shipping times and methods for assuring on-time delivery to the many wide spread units to whom the items go. Second, if the contractor has a problem delivering the items on time, feedback from the Government procurement organizations will not be as immediate for delinquent deliveries to using units. The feedback delay occurs because the using units must report the delinquency through their chain of command to the procuring agency for action. By the time the Government agency reacts, the contractor hopes to have already shipped the delinquent items.

The interviewees from DARCOM felt that fixed-price contracts generally experienced lower delinquency rates, but stated that contracts for first production runs experienced a higher delinquency rate. This is due to delays occurring during set up and correcting deficiencies in the initial productive processes.

This question has not been addressed in the available literature. It appears to the researcher that delinquency

rates are not significantly different between contract types. Certain circumstances exist which tend to be associated with the higher delinquency rates, but these are not a function of the type of contract. They appear to be a function of conditions outside the contract itself.

Question 7 - Is there any specific type or classification of equipment that has been experiencing delinquency problems?

The responses to this question were very much in line with the items listed in the current literature base. The responses listed below are counted by organization rather than by individual. The researcher assumed that all individuals of the organization would perceive the same answer. This will eliminate any bias introduced into the results by a varying number of interviewees per organization. The results are as follows:

<u>Equipment/Material</u>	<u>Organizational Responses</u>
Castings	3
Forgings	2
Electrical components:	
Wiring harnesses	3
Connectors	4
Microprocessors	3
Semiconductors	3
Metals:	
Titanium	2
Copper	1
Silver	1
None known	1

The items which are most involved in delinquency situations are the same types of items having long lead times for commercial industry as well as for items under defense contracts. The extended lead times derive from excess demand in the commercial market and a shortage of manufacturing capacity or raw materials to meet that demand. These lead times are a function of economic supply and demand and are not readily controllable by either party to a contract.

Question 8 - Is there any specific class of contractor, large, medium, small, minority, etc., that has been experiencing delinquency problems?

The responses to this question were fairly clear-cut. The responses have been categorized by type of contractor, and the number of responses are given by organization. Four organizations (DARCOM, NAVMAT, AFSC and DCAS) reported no differences between types of organization for the incidence of delinquency. The other three organizations (DLA, ARRCOM and TARCOM) all provided identical responses and reasons. They stated that small and minority businesses are involved in a higher percentage of delinquencies than other sizes of businesses. Individuals from those three organizations attribute this to an overall lower level of experience, management capability and capital availability.

Although not addressed in the current literature, it seems logical to the researcher that small businesses would have a greater problem of meeting delivery schedules. Many

small and minority businesses are relatively new in the business world. The experience level of managers may be less than that of larger companies. They may not have the available capital or credit needed to accomplish a new job. This is not to say that all small or minority businesses are in this situation, but certainly a higher percentage of them than of larger well-established firms.

E. PREDICTING DELIVERY DELINQUENCIES

Question 9 - What methods are used, or what signals looked for, to predict or evaluate the possibility of delinquent deliveries?

The responses to this question are listed below. The number of responses are reported by individual. The items listed may occur during the pre-award or post-award phase of the contract; the phase is indicated after the response. No major difference in responses was noted between headquarters and buying command personnel.

<u>Response</u>	<u>Phase</u>	<u>Frequency of Response</u>	<u>Percent of total Responses</u>
Pre-award survey	Pre-award	13	35%
Past performance	Pre-award	8	22%
Current performance on other contracts	Pre-award	5	14%
Production surveillance	Post-award	3	8%
Post-award conference	Post-award	3	8%

Material rejection rates on other contracts	Pre-award	2	5%
Size/degree of Government business	Pre-award	2	5%
Purchased parts problems on other contracts	Pre-award	1	3%

The percentage of total responses listed above indicates that the most important indicators of possible delinquencies are the pre-award survey and past performance. The pre-award survey involves an evaluation of the ability of the contractor to perform in a satisfactory manner. The purchasing office indicates which particular areas it wants the contract administration office to investigate and evaluate. DD Form 1524 is used to request the survey and report the results. Factors to be investigated include such items as technical, production and financial capability, plant, facilities, equipment, labor resources, performance record and ability to meet required schedule. If delivery dates are critical, the factor of ability to meet required schedule is very important.

Even though the contractor's performance record is included in the pre-award survey, 22% of the responses listed past performance separately. These individuals indicated that additional attention should be placed on the past performance of the contractor in meeting delivery requirements. They noted that particular attention should

be given to past performance on delivery of the specific items or similar items involved in the instant contract. One of the interviewees commented, "Past performance on specific items and items in general, when combined with the results of the pre-award survey, provides the best indication of probable contractor performance."

Current delivery performance on other contracts with the Government and with private industry can provide a current indication of timely contract completion. This information can be obtained from the contractor or from production surveillance personnel involved with other contracts in the contractor's facilities. Progress on the instant contract can be monitored and reported on by these same production surveillance personnel during the post-award phase of the contract.

Three of the interviewees felt that the answers and behavior of contractor personnel during the post-award conference provided an indication of probable delivery performance. If the contractor was aware of all aspects of the contract and the production plans, the probability of a delinquency was considered to be low. If the contractor seemed to not fully understand the requirements and was vague about production plans, the possibility of a delinquency increased.

Two of the interviewees felt that material reject rates of similar contracts provide an indication of the quality

control exerted by the contractor over his production. A high reject rate can show poor quality control and indicate that possible high rework efforts are required. This may cause a contract to be delivered late.

The size or degree of a contractor's involvement with Government business can have an effect on the priority given to completion of a contract. When a substantial portion of total sales by the contractor are made to the Government, a greater level of management attention will be given to fulfilling contract requirements. Where the Government is only a minor customer, production priority on its contract may be low, and the possibility of a delinquency increases.

One of the individuals interviewed indicated that he looks for problems with contractor purchased parts as an indicator of possible delinquency. If control over his purchased parts and influence over his vendors is poor, he may have problems obtaining or maintaining control over his raw materials and components. This could lead directly to late completion of the contract and subsequent late delivery of the items. An example of this was cited earlier when the contractor failed to follow up on his parts orders and lost control of the items in his receiving department.

Although some of the individuals interviewed had developed particular indicators of delinquency, undoubtedly based on their personal experience, the pre-award survey

and past performance were the primary indicators. These two items combine actual performance data with current estimates and evaluations of contractor capabilities to give a clear indication of the possibility of a delinquent situation arising during performance of the instant contract.

F. SCHEDULE MODIFICATIONS

Question 10¹ - When it becomes apparent that the required delivery will not be made on schedule, what considerations are given to allowing the schedule to change as opposed to terminating the contract? Why?

Question 11 - Same question as above, but to disallowing a schedule change? Why?

Question 10 and 11 were designed to probe the considerations for and against schedule changes when a delinquent situation develops. As the interviewing progressed, it became obvious to the researcher that the two questions were identical in nature, merely opposite in direction. The answers to the two questions were identical in form, but varied in degree. As such, the responses, discussion and analysis will be presented together. The responses were as follows:

<u>Response</u>	<u>Frequency of Response</u>
Degree of Government fault	5
Urgency of need	4
Sole source	3
Best interest of Government	3
Proprietary item/data	1
Possible loss of fiscal year money	1

The degree of Government fault in causing any production delays was indicated as an important consideration in allowing or disallowing a change in delivery requirements. If the Government was not involved in causing a delay, and all factors involved in the delay were under control of the contractor, the delivery schedule should not be changed. If, however, the Government was partially or totally at fault for the delay, the schedule requirements should be modified to compensate for the extent of the delay caused by the Government. Any delay resulting from actions or inactions of the Government acting in its contractual capacity, as described in DAR 7-104.77(f), is excusable and adjustments in the delivery schedule or other consideration can be made. This response is drawn directly from the DAR and has been supported by discussions in the literature base.

The responses of urgency of need for the item and consideration of the best interests of the Government are often tied closely together. If an item is urgently needed

by the requesting agency, it may be in the best interest of the Government to extend the delivery schedule rather than terminate the contractor for default. For example, an item which has just become delinquent may be finished by the contractor in a month. If the estimated time to terminate this contract and reprocure the item is three to four months, the best interests of the Government may be served by extending the delivery schedule in lieu of termination. Conversely, if the contractor shows no indication of completing the contract within a reasonable time period, the best interests of the Government may be served by disallowing a schedule change, terminating for default and reprocuring the item. All aspects of the situation must be considered in making such a decision.

Whether an item is manufactured by a sole source or using a proprietary item or data may have a direct impact on the decision to allow or disallow schedule change. These two responses were quite similar in nature and can be examined concurrently. In either situation, the Government has but one contractor from whom to purchase the item, at least in the near term. In a longer time span, it is possible to develop a second source for the item, but this consideration would not directly effect the action taken on the current contract. When only one contractor makes the needed item, default proceedings can often be a useless exercise in that if the item is still needed, the Government

will be forced to deal with that same contractor again. Action taken in these situations is not discussed in the DAR or other applicable regulations and must be made by applying sound business judgment. .

The last response, the possible loss of fiscal year money, applies more to delinquencies near the end of the fiscal year than to those occurring at other times. Funds not obligated by the end of the appropriation period are lost to the procuring agency and revert to the U.S. Treasury. For delinquencies occurring near the end of a fiscal year, termination of a contract could result in the loss of use of those funds if they could not be reobligated in the proper time period. For these financial reasons, the procuring agency may prefer to extend the delivery schedule or take no action toward default proceedings in order to preserve the use of those funds by the agency. The researcher understands the desire of the agencies to gain maximum use of all available funds and the aversion to losing funds at the end of a fiscal year, but feels that such action may suboptimize the overall acquisition effort by, in effect, condoning delinquencies by the contractor.

The decision to allow or disallow schedule changes when a delinquency occurs is very dependent on the facts of the particular situation. When this particular decision point arises, the Contracting Officer must examine those

factors listed above, and any others that may be pertinent, and apply his sound business judgment to arrive at the appropriate decision.

Question 12 - If a schedule change is allowed, what damages are assessed or adjustments in consideration are made in the contract provisions?

Question 13 - How and when are they determined?

Question 12 and 13 are discussed together since they are really different aspects of the same issue. The responses from all persons interviewed were virtually identical. In response to a change in delivery schedule, some adjustment was made in the price paid, quantities delivered or other contractual provision; a change in the price paid is the dominant adjustment. The adjustment in consideration is made at the time of the modification to the contract and is made by the contracting officer or his authorized representative. The type and amount of adjustment is negotiated between the contractor and a Government representative.

The interviewees also agreed that the amount of adjustment in consideration has been ineffective in reducing the incidence of delinquency. A typical comment was, "The usual adjustment is \$25 to \$100; that's just a chicken-feed amount." The description of the adjustment as "chicken-feed" was in relation to the total value of the contract. On most contracts, an adjustment of \$25

to \$100 is a mere fraction of one percent of the contract. Such a small amount would not particularly concern the contractor, and would not provide sufficient incentive to correct future delinquency situations.

The available literature did not address the question of adjustment in consideration. The researcher believes that if adjustments in consideration are to be used to discourage delinquencies, they must be of sufficient magnitude as to convince the contractor to take sufficient action to reduce or eliminate future delinquencies. The size and type of adjustment must be determined by taking into account all aspects of a particular situation before arriving at a decision.

G. TERMINATION FOR DEFAULT

Question 14 - In delinquency situations, how often has termination for default been seriously considered?

Question 15 - How often was it actually used?

Question 16 - When termination for default was considered and rejected, why was it rejected?

Question 14, 15, and 16 were posed to examine several aspects of the use of termination for default and its probable impact on reducing the incidence of delinquency. As the responses to the three questions relate to each other, the data and analysis will be presented together. There was no significant difference in responses between headquarters and buying command personnel. The response

from DCAS is not included because it was found that DCAS is rarely involved in the decision-making or implementation of termination for default. The response data is presented by command or agency. The abbreviated reasons for rejection will be discussed and expanded below.

<u>Organization</u>	<u>Seriously Considered</u>	<u>Actually Used</u>	<u>Reasons Rejected</u>
DARCOM	not often	low rate	fault, funding, need
NAVMAT	few times	rarely	need
AFSC	seldom	nearly never	need
DLA	5%	0.1%	not in best in- terest of Govt., time, money, man- power
ARRCOM	1%	1.5%	cumbersome pro- cedures
TARCOM	few (when rights not lost)	10-20% of those con- sidered	need, criticality

As noted in the responses, termination for default has not been a serious consideration in the majority of delinquency situations. The actual usage of the termination procedures has been negligible. Although the reasons for its non-use are varied, need for the item by the Government was mentioned by individuals of four of the seven organizations. Regardless of the legal and regulatory proprieties of terminating the contract under default conditions, the Government's need for the item will not be fulfilled by doing so. In obtaining items from a sole

source, or items with long acquisition or production lead times, the reasonable probability of obtaining the needed item by other means in an expeditious manner is remote. In these cases, the need can often be fulfilled in a more timely manner by allowing the delinquent contract to remain in force.

Where some level of fault for the delay is assignable to the Government, any action taken to terminate the contract may give the contractor recourse against the Government through the disputes procedures. This may be costly and time-consuming to the Government agency involved. The possible loss of fiscal year money was discussed under Questions 10 and 11.

Several of the individuals interviewed felt that the legal and regulatory procedures for terminating a contract under default conditions were too cumbersome to be effectively employed against delinquencies. One individual stated that two of the termination proceedings he was involved in had been in process for over a year. With limited time and manpower available to the Government procurement offices, the effort necessary to terminate a contract is often not worth the gain to the Government in terminating the contract. All of the above stated reasons for not terminating for default are part of the concept of best interest of the Government.

It appears to the researcher that termination of a delinquent contract for default has little value in

decreasing the level of delinquencies. The very small percentage of actual terminations provides little incentive to the contractor to decrease delinquencies. An intensified effort to impose termination procedures where appropriate should have the effect of decreasing the incidence of delinquency.

H. CONTROLLING DELIVERY DELINQUENCIES

Question 17 - What are the established procedures to control or reduce delinquent deliveries, in both pre-award and post-award phases of the contract?

Question 18 - How well do they work?

Question 19 - Why are they used?

Question 20 - Who is involved with them, and to what extent?

Questions 17 through 20 are sufficiently similar in nature to warrant discussing and analyzing them together. Actions taken to reduce the incidence of delinquency may occur during both the pre-award and post-award phases of the contract. As the point of award of the contract is the point of Government and contractor commitment to the contract, this is a logical point to divide the types of action. Actions taken prior to award to reduce the probability of delinquency are preventive in nature, while actions taken after award are remedial in nature. Both preventive and remedial actions can be considered as

controls, and can serve to reduce delinquencies. The logical separation of these kinds of control actions is at the point of contract award. The response data to the questions will be presented in that format. The responses are as follows:

<u>Pre-award Actions</u>	<u>Responses</u>
Effective pre-award survey	3
Use of greater technical expertise during pre-award conference	1
Open communication	1
Performance bonding (used mainly in construction)	1
Special consideration for extended lead time materials/components	1
Make-buy consideration	1
<u>Post-award Actions</u>	
Production surveillance	2
Liquidated damages	1
Open communications	1
DMS/DPS priorities	1
Cure notice/show cause notice/forebearance	1
Use of DCAS expediter	1
Escalating letters of concern	1
Technical assistance to the contractor	1
Expedite waivers/deviations	1
Provide assistance in getting parts/materials	1
No legitimate way	1

The responses to Questions 18, 19 and 20 were unanimous and will be presented and analyzed after discussion of the responses listed above.

Three of the individuals interviewed stated that the information gained during an effective pre-award survey was instrumental in detecting, and thereby reducing, the chance of a delinquency. When a pre-award survey indicates a circumstance associated with a delinquency, the circumstance may be examined more closely and discussed with the contractor for possible resolution. In formally advertised solicitations, the indication of a possible delinquency could be used as grounds to declare the contractor nonresponsible, if such indication was strong enough. When contractor adherence to the schedule is considered important, the contracting officer must notify the persons performing the pre-award survey of that importance and request that certain elements of the survey be examined in greater than normal depth.

One individual suggested the use of a greater amount of technical expertise during the pre-award conference in order to more adequately assure complete understanding of the contract requirements by the contractor. In this way, delays in production due to misunderstanding of requirements would be reduced.

One individual stated that open communication with the contractor personnel would reduce the occurrence of

delinquency. Fostering open and free communication would promote better understanding of requirements and perhaps promote greater cooperation toward timely contract completion.

Although performance bonds are normally required only for construction contracts, one interviewee suggested that their use on time-sensitive contracts would tend to reduce the incidence of delinquency. The bonds would serve to increase the attention of the contractor on the importance of timely completion of the required work.

One of the interviewees commented that special consideration should be given to preparation of the delivery schedule when the needed item utilizes raw materials or components requiring extended acquisition lead time. He stated that his organization had discussed this concept, but had not implemented it as a formal program. Special checks on known long lead time items and random checks on suspected items would allow a more realistic development of required delivery dates. This would reduce the levels of delinquent contracts. This extra effort requires increased usage of manpower resources, and may not be feasible for organizational implementation at all commands.

One individual suggested that greater Government involvement in the contractor make-buy decision could serve to reduce the long-term incidence of delinquency. By specifying that the contractor manufacture or subcontract for

certain items, the Government could aid in speeding the availability of those components. For items with long subcontract lead times, the contractor may be able to manufacture the items with his in-house capabilities in a more timely manner. Conversely, for items normally manufactured in-house, some components may be available in a more timely manner by subcontracting. This concept has been discussed by the individual's organization, but has not been actively implemented because it generally requires a high level of initial investment to develop a new in-house capability. Applied on a selective basis, the concept could reduce delinquency levels on particular contracts.

The actions discussed above may occur prior to award of the contract and are preventive in nature. Other actions may occur after award of the contract which are remedial in nature in that they become operative after an indication is received from the production progress that a delinquency is imminent or has already occurred. Once the delinquency has actually occurred, any action taken serves only to reduce the length or impact of the delinquency.

Two of the individuals interviewed indicated that production surveillance by industrial specialists at the contractor's plant is an effective means of early identification of potentially delinquent situations. Once that potential is identified, efforts can be made to rectify the

situation before an actual delinquency occurs. This on-going observation of the contractor's production efforts allows real-time feedback to Government organizations of the status of a contract. Progress on the contract may be monitored and charted using PERT, Gantt, line of balance, milestone and other techniques.

One individual suggested that Government use of liquidated damages serves as a powerful motivator for the contractor to complete the contract as quickly as possible. This serves to reduce the extent and impact of the delinquency, and may serve to decrease future delinquencies from the same contractor.

One individual mentioned that open and free communication during contract performance can serve to reduce the incidence or impact of delinquencies. Problems, suggestions and possible solutions can be fully explored and discussed. This will help to assure timely completion of required work under the contract.

One individual mentioned that in certain situations, the provisions of the Defense Materials System and the Defense Priorities System (DMS/DPS) can be applied to speed the availability of materials and increase production priorities of critical items. If the application of the provisions is effective, the incidence of delinquency can be reduced. This individual cautioned, however, that, "There are no teeth in the DMS/DPS program." Although the

Commerce Department has enforcement responsibility, he felt that they provided inadequate enforcement of program provisions. He stated that the flow-down provisions, whereby subcontracts receive the same rating as the original program, are often ignored by subcontractors or not placed in subcontract provisions. He also stated that small businesses often have problems applying the priority provisions to larger vendors, suppliers or subcontractors. If these weaknesses are pervasive throughout the acquisition system, it appears to the researcher that the value of the DMS/DPS systems are only effective in the perceived threat of possible action rather than real action or imposed sanctions for failure to comply with program provisions.

One of the interviewees stated that the use of the cure notice, show cause notice, and forbearance prior to termination for default can often be effective in reducing the length or impact of a delinquent contract. These actions tend to increase the pressure on the contractor to perform the contract rather than face the possibility of termination under default conditions. The researcher notes, however, that as discussed in Questions 14 through 16, the contractor's perceived probability of actual termination for default is very remote. If this is the case, the motivational value of the cure notice, show cause notice and forbearance might be seriously questioned.

One of the individuals stated that the use of a specially assigned expediter from the cognizant DCAS office can often

be effective. The expeditor is responsible for ensuring timely actions are taken at whatever levels are necessary to assure timely completion of the contract. This does, however, incur a higher than normal manpower usage. As such, assignment of a special expeditor should be limited to cases of a critical nature.

One individual stated that his organization utilizes escalating letters of concern to motivate contractors to reduce the duration or impact of delinquencies. As a contract appears to be in danger of becoming delinquent, or actually becomes delinquent, letters of concern are written to the contractor from successively higher levels of command within the procuring agency. Usually the contracting officer writes the first letter. The demonstrated higher level of procuring agency interest shown by the escalating letters of concern may motivate the contractor to remedy the potential or actual delinquency in a timely manner.

One of the interviewees stated that in cases where a technical problem is causing the contractor to be in a delinquent situation, or in a potentially delinquent situation, technical assistance by the Government may be offered to the contractor to aid in solving the problem. This aid could reduce the probability, duration or impact of a delinquency. A potential danger in this action is that such aid may give a particular contractor a competitive

advantage for future acquisitions. It may also tend to make the contractor more dependent on the Government to solve his technical problems. Although the Government is not in the business of solving contractor technical problems, judicious use of this technique may be in the best interest of the Government.

Expediting requested or suggested waivers and deviations was mentioned by one of the individuals interviewed as a means of reducing the duration or impact of a delinquency. He stated that by reducing the amount of time involved in processing paperwork and obtaining approval of changes in the contract requirements, the final completion of the contract may occur in a more timely manner. It appears to the researcher that the timely processing of any required or requested action during the contract performance will speed its completion.

One of the individuals stated that where materials or component parts are difficult for the contractor to obtain in a timely manner, Government assistance in obtaining those items would reduce the probability of a delinquency. The researcher feels that the same cautions and potential dangers described under the technical assistance response above also apply to assistance in obtaining parts, components and materials.

The final response to the question of controls of delinquencies was that there exists no legitimate method of

effectively reducing or controlling delinquencies. His contention was that no matter what action the Government takes to reduce or eliminate delinquencies, the motivations of the contractor will not change significantly, therefore the incidence of delinquencies will not change in any significant manner. The researcher feels that this shows a very pessimistic outlook on the process of acquisition.

Several of these recommended control procedures were mentioned in the literature base. Effective pre-award survey and conference, open communication, cure notice, show cause notice, forbearance, liquidated damages and production surveillance were discussed in the available literature. There was no significant difference between the responses of the headquarters and the buying organizations. There was also very little agreement on ways to control or reduce the incidence of delinquency. The researcher infers from this that no one action is especially effective in reducing delinquencies in a broad variety of contracts. Many individual and situational factors affect which action is felt to be effective.

All of the individuals interviewed agreed that the effect of these controls on reducing the incidence of delinquency is unknown. The complexity of interaction between Government and contractor during the life of the contract and the interplay of requests, actions and reactions make it extremely difficult to assess the impact of a single action

on the outcome of the contract. The situational and individual factors involved in selecting and implementing one or more of the controls in any given case makes comparison with other cases very difficult.

All of the interviewees stated that these controls are used because they are authorized in the DAR and other organizational regulations and directives. The very regimented legal and regulatory framework provides the available actions. A typical comment was that these actions were "in the DAR checklist," not referring to a physical checklist, but to the fact that they are contained in the applicable regulations and procedures.

All of the individuals also stated that these actions are taken by the contracting officer or his officially authorized designee, such as the contract administrator. These are the only persons authorized by the DAR to take such action.

Question 21 - Are any different procedures desired or needed? If so, what are they?

This question was designed to probe for recommendations to improve or modify the existing methods of controlling or reducing the incidence of delinquencies. As in the preceding discussion of control actions, the recommended changes in procedures can logically be divided between the pre-award and post-award phases of the contract. Some recommendations are general in nature and apply to the

overall acquisition process. The discussion of recommended changes will be presented in the order of pre-award, post-award and general recommendations.

Recommended procedures effecting the pre-award phase of the contract include four items. First, increase the emphasis on and use of past performance in selecting contractors for award of the contract. Poor performance in past contracts may be used as an indicator of future performance. This judgment should be considered in light of any special circumstances that affected past contracts and any action taken by the contractor to improve his methods of operation and thus eliminate the deficiency causing the delinquency.

Second, the use of more realistic RDD dates in the solicitation documents can serve to decrease the incidence of schedule buy-in by the contractor and reduce the incidence of delinquency. Adequate recognition of current lead times for materials and components will aid in determining reasonable and realistic RDD's. The increase in organizational workload to determine these leadtimes may be partially, or perhaps totally, offset by a decrease in workload caused by a decrease in delinquencies. This balancing effect would not take place immediately, but would be felt over a period of time.

Third, increasingly question the Small Business Administration (SBA) decisions to issue Certificates of Competency

to small businesses who seriously lack the ability to perform the contractual requirements in a timely manner. This suggestion is similar to the idea of utilizing ability to perform the contract requirements in a timely fashion as a key indicator of responsibility.

Fourth, increase the use of the DMS/DPS priorities where appropriate and attempt to get more aggressive enforcement of their provisions. The assignment of high DMS/DPS priorities to time-sensitive requirements should increase the level of management attention on the timely completion of the project. To make the systems even more effective, the provisions need a greater level of enforcement.

Six recommendations were offered which effect the post-award phase of the contract. First, emphasis should be placed on taking needed corrective action during performance of the contract rather than after it has become delinquent. Corrective action effectively taken during the performance of the contract may avert a delinquency, but action taken after the delinquency has occurred can only reduce the duration or impact of the delinquency.

The second suggestion is necessary to adequately carry out the first. Better real-time reporting of aberrations from expected contract performance is necessary for effective action to be taken in a timely manner. The sooner the Government knows of a situation with the potential for causing a delinquency, the sooner it can take action to correct the situation and avert a late delivery.

Third, better or more timely processing of required paperwork will eliminate any production delays caused by paperwork delays. Expeditious consideration and action requested or required for contract completion will reduce the number of potential delays which could cause a contract to move into a delinquent status.

Fourth, the contractor should be required to notify the Government at the earliest moment that a contract is likely to become delinquent. Regardless of production surveillance activities of the Government, the contractor is in the best position to determine the actual progress of a contract and project its probable completion date. If a contract is projected to become delinquent, the contractor should notify the Government at that point so that any required corrective action can be taken to avert a delinquency.

Fifth, once the contract has moved into a delinquent status, the adjustment in consideration should be of sufficient size to motivate the contractor to reduce future delinquencies. As discussed previously, the consideration demanded for a change in the delivery schedule has been generally ineffective in reducing delinquencies. Stated one individual, "If the Government demanded enough consideration to make it hurt, delinquencies would be reduced."

The sixth suggestion has actually been implemented by one of the organizations interviewed. When a contract

becomes delinquent, instead of having the contracting officer make a positive determination to terminate the contract, require him to make a positive determination not to terminate for default. The former determination tends to assume the Government will not terminate, and the contracting officer must make the determination to terminate. The latter determination takes a more aggressive stance in that it assumes that the Government will terminate a contract for default unless the contracting officer determines not to initiate termination proceedings.

Three suggestions of a general nature were made. The first was that for the level of delinquencies to be reduced, the attention of Government acquisition personnel must be focused on the problem. People will naturally focus their attention on what they perceive to be organizational goals as well as the interests of their supervisors. Expressed management interest in the delinquency problem will serve to activate increased interest in and attention to the problem and cause a reduction in the incidence of delinquency.

The second suggestion was that currently available programs, such as the DMS/DPS, be more strongly enforced and applied. The mere existence of a program has little of the desired effect without aggressive enforcement and application of its provisions.

Third, the efforts of Government acquisition personnel should be concentrated on problem contractors. Those

contractors who consistently perform their contracts within the required parameters should be allowed to continue to do so without Government surveillance and involvement. Conversely, those problem contractors who continually fail to meet delivery and performance requirements should receive the in-depth attention of the Government.

The changes proposed by the individuals interviewed are multi-faceted in nature. The researcher feels that maximum efforts should be made to effectively utilize the existing programs before new ones are developed. Increased attention on past performance as a predictor of future performance can be used to identify those contractors needing intensive scrutiny on current contract performance. Corrective actions during contract performance are more effective in reducing delinquencies than are actions after the delinquency has occurred. To accomplish this, near real-time information is needed from the contract administration organizations. Increased interest and attention of all personnel in Government acquisition organizations is essential to any effective effort to reduce the incidence and impact of delinquent contracts.

Question 22 - What procedures, outside of the established ones, are used to control or reduce delinquent deliveries, in both pre-award and post-award phases of the contract?

Question 23 - How well do they work?

Question 24 - Why are they used?

Question 25 - Who is involved with them, and to what extent?

Questions 22 through 25 were asked in an effort to identify other than established procedures used by Government acquisition personnel to reduce the incidence of delinquency. No responses were obtained for currently utilized actions within this classification. It seems to the researcher that there are two possible reasons for the lack of response. The first reason is that the interviewees knew of no unauthorized procedures being currently used. The second reason is that they did not wish to disclose any such activities. The researcher feels that because of the confidentiality of the interviews and the willing cooperation in fully answering all other questions, the first reason is most likely. On the whole, Government acquisition personnel use only those control procedures established in the DAR and applicable organizational directives.

I. SCHEDULE PERFORMANCE

Question 26 - What internal control or tracking procedures are used to monitor schedule performance?

Question 27 - How effective are they?

Question 28 - Who monitors them?

The purpose of Questions 26, 27 and 28 was to determine what, if any, organizational activities are being performed to track the status of contractor performance on a contract. The initiation of effective corrective action to remove a

potential delinquency-causing situation during completion of the contract is predicated on timely knowledge of the status of contract performance and progress. Only two of the organizations interviewed described actions taken to gain such knowledge. TARCOM stated that monthly telephonic inquiries are made to obtain current status of contract progress on critical items. DCAS uses contractor progress reports to monitor the status of progress on contracts. Unless supported by direct observation and reports by industrial specialists in the contractor's facilities, both of these tracking methods rely on information generated and reported by the contractor. The accuracy and timeliness of the reported information is entirely dependent on the contractor.

The other organizations stated that their control or tracking procedures consisted of information obtained from the various management information systems identified in Chapter Two as CCSS, AMIS and SAMMS. For example, the SAMMS system provides the F-38 report, or Current Delinquencies by CLIN, and the F-39 report, or CLINS due for Delivery. These and other management information system reports are used by the Government in tracking the status of contract performance. These reports are summary in nature and tend to report problems well after they have occurred.

With the exception of TARCOM, all organizations felt that the effectiveness of their tracking systems in reducing

the incidence of delinquencies has been low. The reporting systems do not allow near real-time action to be taken in order to reduce delinquencies. TARCOM applies management by exception to contractors having problems keeping up with schedule requirements. They feel that this method is somewhat effective in reducing delinquencies.

Three sources of monitoring activity are involved in tracking contract progress. DCAS, the major subordinate commands of DARCOM and the post-award divisions of the DLA procurement centers monitor contract progress through the various methods described above.

The effectiveness of the monitoring and control activities of procurement organizations has not been discussed in the available literature base. The researcher feels that the only way to provide truly effective tracking and control procedures is to perform on-line observation at the contractor's facilities. The information provided by the management information systems is not timely enough to provide for action on the contract prior to delinquency. Information provided by the contractor through written or telephonic reports may be suspect as to accuracy and timeliness. The contractor will wish to portray his activities in a favorable manner and may distort the reported information.

J. DELIVERY INCENTIVES

Question 29 - What do you perceive to be the contractual or extra-contractual incentives to meet scheduled deliveries in a competitive environment?

Question 30 - In a sole source environment?

These two questions were posed to explore the difference in incentives to meet schedule requirements for competitive and sole source environments. The responses indicated no difference in types of incentives between the two business environments. As such, the response data will be presented together. The responses were as follows:

<u>Contractual Incentives</u>	<u>Responses</u>
loss of income	3
positive contractual incentives	3
negative contractual incentives	3
schedule incentives	1
performance bonding	1
<u>Extra-Contractual Incentives</u>	
corporate pride/prestige	4
nebulous patriotic feeling	3
less Government involvement	2
professional pride	1

One incentive inherent in the contract was mentioned by three of the individuals interviewed. That is the loss of income due to a decreased level of payment for the items

delivered. The decrease in payment may be caused by a change in consideration in the form of lower cost to the Government for a change in the delivery schedule. It may also be caused by the deduction of liquidated damages from the contract price. Since profit is the primary motivator of contractor activity, a threat of reduction in profit becomes a primary incentive to perform within the delivery schedule.

Three of the individuals interviewed mentioned the broader term of positive contractual incentives, which includes profit and special incentive fees for meeting or exceeding specified schedule requirements. It may also include progress payments when such payments are tied to completion of parts or all of the specified work by given dates or within given periods of time.

These same three individuals also mentioned the broad term of negative contractual incentives. This includes decrease in total payment by adjustment in consideration for a change in the delivery schedule, the deduction of liquidated damages from contract price, delay of progress payments when tied to the delivery schedule and avoidance of termination of the contract for default. The adjustment in consideration may directly or indirectly affect profit on the contract. A direct effect on profit would be a reduction in contract payment; an indirect effect would be an increase in the amount of service or product delivered.

One individual mentioned schedule incentives specifically as a motivator for the contractor to meet delivery schedules. Depending on the provisions of the incentive arrangement, the incentive may be positive or negative. Variations of the incentive arrangement may provide for an increase in price for exceeding or meeting delivery schedule or for a decrease for failure to meet the schedule. These arrangements are tied directly to the primary motivator of profit. One individual suggested the use of performance bonding as an incentive to contractors to meet delivery schedules. Although generally used in construction projects, performance bonds could be adapted to production contracts to provide an additional incentive to complete contract requirements by the required dates.

The most-mentioned extra-contractual incentive was corporate pride and prestige. This was mentioned by four of the interviewees. Employee pride in the corporation and prestige among other corporations may derive from the ability of the firm to fully meet its commitments. Lack of delinquent contracts contributes to the pride or prestige of the corporation.

Three of the individuals interviewed indicated that a nebulous patriotic feeling toward completing Government contracts in a satisfactory manner acts as an incentive to reduce late deliveries. The feeling that a firm should support the Government by providing its best service may

lead to a reduction in the level of delinquencies. This could occur when the patriotic feeling causes the firm to direct more management attention to the Government contract.

Two of the individuals interviewed stated that an incentive for a contractor to perform the required work on time is that of less Government involvement. When the contractor performs adequately, the Government does less monitoring of production activities. Many firms do not like to have Government acquisition personnel involved in their business operation. In order to avoid this involvement, which may be considered disruptive, the contractor may be motivated to complete all of his Government contracts in compliance with the requirements.

One of the individuals interviewed mentioned professional pride as an incentive to delinquency avoidance. This is differentiated from corporate pride in that professional pride is the personal feeling of an individual manager in his ability to accomplish his assigned tasks in a timely and complete manner. The individual efforts of the management personnel may lead to a reduction in the incidence of delinquency.

The researcher feels that contractual incentives are far stronger than extra-contractual incentives. The profit motive is directly tied to contractual incentives. When dollar payments and profit levels offered under the contract are threatened, the feelings of pride, prestige and patriotism

can easily become subordinated to the dollar. The effects of negative incentives reduce the level of profit on a given contract, while positive incentive provisions can increase profit. During the interviews, three of the individuals stated that less than one percent of all contracts contain positive incentives other than contract price; at the same time, all contracts contain negative incentives. Except for controlling costs, there seem to be few provisions for increasing profit and many provisions for reducing profit. The researcher believes that an increased use of positive contractual incentive provisions will have a greater affect on reducing delinquency than the use of negative provisions.

Question 31 - How effective are the incentives?

The existence of various incentives is of little value unless they are effective. The responses were as follows:

<u>Effectiveness</u>	<u>Responses</u>
not effective	9
extra-contractual incentives not effective	8
incentives more effective in competitive environment	3

Nine of the individuals interviewed stated that none of the available incentives are effective in reducing the incidence of delinquency. These individuals felt that the negative incentives, such as termination for default, change in consideration and liquidated damages, have not

been strenuously applied, or have not been applied with sufficient magnitude, to be effective in reducing delinquent delivery.

Eight of the individuals interviewed stated that the contractual incentives are slightly effective, and the extra-contractual incentives have no effect at all on reducing delinquencies. They felt that the profit motive was sufficiently overriding as to eliminate the effects of extra-contractual incentives. Extra-contractual motivations can easily be subordinated by the profit motive directly tied to contract provisions. Three of the individuals stated that they perceived any of the operative incentives to be somewhat more effective in the competitive environment than in a sole source environment. In a competitive environment, several firms vie for the contract and the opportunity to make a profit. The profit incentive becomes more effective since adequate profit allows the firm to continue in the marketplace.

The available literature base did not discuss or evaluate the effectiveness of contractual or extra-contractual incentives in either the competitive or sole source environments. The researcher feels that the profit motive is the overriding motivation for the contractor to perform. If this motivation is to be effectively stimulated, the proper mix of positive and negative incentive provisions must be used. Where timely delivery is an important element of an acquisition, a positive incentive provision should be

included in the contract. Corresponding negative provisions should also be included for the failure to perform the requirements in a timely manner. The more critical the dimension of time, the greater should be the magnitude of the incentive provisions.

K. DELIVERY SCHEDULES

Question 32 - How do you check the plan for meeting delivery schedules when letting a contract?

All of the individuals interviewed stated that the contractor's plan for meeting a delivery schedule is checked by the pre-award survey team. The survey team, if requested, examines the contractor's plans and determines whether they are consonant with the capabilities, capacity and facilities. For an item routinely manufactured by the contractor, such as commercial items, no specific plan may be necessary. The manufacturing plan is known and capacity may be the only question in the contractor's ability to deliver the items on time. For non-routinely manufactured items, the complexity of the plan may cover a wide range from short and simple to voluminous and complex. The adequacy of the plan is estimated by the pre-award survey team.

The researcher feels that for most contracts, the pre-award survey should provide adequate assessment of the contractor's plan for timely completion. Where time is a critical factor in the acquisition, the procuring office may wish to participate in the survey or require the

contractor to submit the details of his plan prior to award of the contract. Because of the extra manpower necessary to accomplish this, the selection of contracts to which to apply these procedures should be made in a judicious manner.

Question 33 - How does the prime or subcontractor establish a plan for meeting delivery schedules?

All of the individuals interviewed agreed that there is no given method of establishing a plan for meeting delivery schedules. The level of effort placed into planning for schedule requirements is dependent on the complexity and novelty of the acquisition. A routinely manufactured or simple item requires little formal planning. Complex or novel items require extensive planning by many of the firm's specialists. The level of detail in the planning effort is dependent on the complexity of the item and the magnitude of the acquisition in terms of dollar amounts and percentage of the firm's total business.

General methods of planning and scheduling have been presented in the current literature. The researcher feels that the method of establishing a plan for timely contractor completion of the requirements is not as important as the existence and completeness of the plan.

Question 34 - How do you establish the required delivery dates?

All individuals interviewed stated that the customer established the required delivery dates. Since the procurement organization exists to serve the needs of the

customer, it must attempt to acquire the desired items within the times specified by the using organization. Failure to do so results in a failure by the procuring organization to provide complete support to its customers.

L. FUTURE TRENDS IN CONTROLLING DELIVERY DELINQUENCIES

Question 35 - What do you anticipate the future trend to be in delinquent deliveries? Why?

The purpose of this and the following question was to attempt to identify common expectations of what is anticipated to occur in the future for delinquencies and actions taken to reduce delinquencies. The responses were divided between no change and slight improvement. The data is presented by individual and by organization in order to reduce any bias created by an uneven number of individuals per organization. There were no major differences in responses between headquarters and buying command personnel. The response data is presented below.

<u>Trend</u>	<u>Organizations</u>	<u>Individuals</u>
no change	5	9
some improvement	2	8

Nine of the individuals interviewed stated that they anticipated no change in the overall level of delinquencies. They felt that the basic reasons for the delinquencies would continue to be operative. They also perceived that no major

change or improvement in available controls will be forthcoming. With no reduction in the incidence of causes and no improvement in controls, the likelihood of a reduction in delinquency levels was deemed remote.

Eight of the individuals expressed the opinion that the levels of delinquency will decrease slightly due to an increased level of management interest. As management personnel express a greater interest in reduction of delinquency levels, the focus of attention of their subordinates in the acquisition organizations will be shifted more toward reducing delinquency levels. They did not foresee major changes in the causes or controls of delinquencies, merely an increase in management attention.

The researcher feels that the latter is more likely to occur. As the true impact of the delinquency problem becomes more fully realized, the intensity of management interest will increase. When this interest is communicated to the subordinates, their desire to appear responsive to management desires will lead them to attempt to eliminate or reduce delinquency-causing situations. Success in these efforts will reduce the level of delinquencies.

Question 36 - What do you anticipate the future trend to be in control procedures?

The purpose of this question has been previously described. No major differences between responses of headquarters and buying commands were noted. The responses are presented below:

<u>Trend</u>	<u>Organizations</u>	<u>Individuals</u>
no change	4	10
some improvement	3	7

Ten of the seventeen individuals interviewed felt that no changes in the types of control procedures available or the use of the current procedures would be forthcoming. They felt that other acquisition problems held higher priorities than delinquent deliveries, and therefore no corrective action would be likely in the near future.

Seven of the individuals stated that they anticipated some improvement in the use of current control procedures. They commented that although they did not feel that new controls would be established, the existing ones would be more effectively utilized. They felt that increased management interest would lead directly to a more intensive utilization of available remedies or controls.

The researcher feels that the latter will be the case. Many control procedures are available within the Government acquisition system; these were discussed in this and previous chapters. This research has indicated that several of the available controls are not perceived to be used effectively. If the effectiveness of the utilization of these available controls is increased, new or changed controls may not become necessary.

M. SUMMARY

This Chapter has presented the data obtained during the interview sessions and has provided an analysis of that data. The perceptions of acquisition personnel as to the extent and impact of the delinquency problem were examined. The causes of late deliveries were identified by the various sources of those causes. Contract types, equipment classifications and sizes of contractors exhibiting particular delinquency problems were examined. Predictive signals of delinquencies were identified and discussed. The considerations involved in approving or disallowing schedule changes were explored. The use of termination for default in the case of late deliveries was examined as well as other control procedures used to reduce the incidence of delinquency. Schedule control and tracking procedures were examined. An evaluation of the contractual and extra-contractual incentives to perform in a timely manner was presented followed by a discussion of evaluation procedures for delivery plans. Finally, a presentation of perception of future trends in the areas of delinquency levels and available control procedures was made.

Chapter Four will present the conclusions and recommendations of the researcher based on the data and analysis presented in this Chapter.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS AND RECOMMENDATIONS

This research has allowed the researcher to make several conclusions and recommendations.

1. Conclusion - The delinquency problem is serious and deserving of increased attention within the Government acquisition community. Between fifteen and thirty percent of all contract line items are not delivered in a timely manner. Across DoD, the dollar value of the delinquent items is estimated at several billion dollars. These findings and support for this conclusion were discussed in Section C of Chapter II.

Recommendation - The size and seriousness of the delinquency problem should be publicized to all levels of the various acquisition agencies. Estimated data for DoD and specific information for the particular organization should be disseminated to both management personnel and subordinates within the headquarters and buying organizations. The attention of these acquisition personnel will be focused on issues of command interest and those for which specific information exists. If attention is not focused on the delinquency problems, the status quo will prevail. Command Information programs and posters can be used to disseminate the information and stimulate interest in reducing the level of delinquency.

2. Conclusion - The majority of causes of delinquency is management oriented. The findings presented and discussed in Question 5 lend support to this conclusion. For both Government and contractor-caused delinquencies, the failure by management to provide complete and current information, make timely decisions, provide adequate and realistic planning and properly follow-up on the implementation of plans have been shown to be primary causes of delinquency.

Recommendation - Government acquisition organizations should take positive steps to increase the effectiveness and efficiency of management. They should also encourage contractors to take these same actions. A careful review of programs should be made in such areas as selecting realistic RDD's, updating technical data packages, assuring timely provision of Government furnished materials, equipment and tooling and processing required paperwork in a timely manner. The Government should also make a more careful review of contractor management capabilities during the pre-award survey. Improving management of contracts should decrease the incidence of delinquency.

3. Conclusion - More emphasis is placed on reducing delinquencies after the delinquency has occurred than before award or during contract performance. Question 17, which discusses the available control procedures for delinquencies, provided six different responses for pre-award actions and eleven different responses for post-award actions. Nearly twice the number of pre-award actions are available for use after the award of the contract.

Recommendation - The major acquisition commands should place greater emphasis on taking action to reduce delinquencies before and during contract award and performance. Action taken after the delinquency has occurred can serve only to reduce the impact and duration of the delinquency. Command emphasis on action prior to delinquency rather than reaction after its occurrence could reduce delinquency. Responses to Question 21 tend to support this recommendation and provide some specific actions which should be taken. Command emphasis on timely application of available control procedures will translate into appropriately increased attention by acquisition personnel. This should lead to a decrease in the incidence of delinquency.

4. Conclusion - The pre-award survey is the most frequently used item of information in predicting the probability of a delinquency. As indicated in the discussion of the responses to Question 9, over one-third of the individuals interviewed utilized the information provided in the pre-award survey as a predictive device in assessing the probability of a delinquency.

Recommendation - The major acquisition organizations should improve and increase the utilization of the pre-award survey information in detecting probable delinquencies. If detected early, timely action can be taken to reduce the probability that delivery of the required items will be late. By increasing the number of times that a pre-award

survey team is requested specifically to examine and evaluate the possibility of delinquency, an acquisition agency should be able to detect and correct early signs of possible delinquency in a greater portion of contracts. When this happens, the level of delinquency will decrease.

5. Conclusion - The use of past performance on contract completion is a very important indicator of probable future performance by a contractor. As indicated by the response data to Question 9 twenty-two percent of the responses indicated that past performance is used as a predictive device for possible delinquencies. When past performance indicators are combined with pre-award survey information acquisition personnel should have a very good indicator of probable performance on the contract.

Recommendation - The major acquisition organizations should stress an increased use of past performance as a determinant of source selection where timely delivery of the items is a critical factor in the acquisition. Early identification of potential problems can allow intensive management effort to be focused on solving the problem and reducing the probability of a delinquency.

6. Conclusion - Available incentive provisions, both positive and negative, contractual and extra-contractual, are not effective in reducing the incidence of delinquency. Moreover, those incentives which are available are not being effectively utilized. The responses to Question 31 indicate

that incentives to reduce delinquencies are of limited effectiveness. Three of the individuals responding to Question 30 indicated a lack of use of positive incentive provisions; further, the responses to Questions 14 through 16 provide an example of non-effective use of termination for default, one of the control procedures.

Recommendation - Acquisition agencies should encourage greater use of positive incentive provisions and more strenuous application of negative incentive provisions. In order to better motivate contractors to deliver the specified goods in a timely manner, the incentives, both positive and negative, must be effective. Incentive provisions which are effectively employed will motivate the contractor to strive toward timely completion of the contract and to avoid delinquency situations.

7. Conclusion - There is a sense of futility and fatalism about the delinquency problem among the Government acquisition community. The lack of timely information flow between procurement, administration and contractor personnel, the prescriptive nature of the DAR, and lack of effectiveness of the remedial alternatives provided by the DAR contribute to the feeling that little can be done, or will be done, to reduce or eliminate the delinquency problem. The responses to Question 18 indicate that the perceived value of current controls is small. The responses to Questions 35 and 36 indicate that no significant changes

in the extent of the problem or the available controls over the problem are anticipated. These expectations have led to an attitude of resignation.

Recommendation - A modification of these attitudes will require acquisition management personnel to aggressively support both proactive and retroactive control procedures. This support will slowly change the current attitudes, but the change will be slow and may occur over a long period of time. Positive attitudes about the ability to reduce the delinquency problem may lead to an actual reduction in the level of delinquency.

8. Conclusion - Development of a decision-assisting model for the delinquency problem is not feasible at this time. A multiplicity of causes, controls, considerations, predictive devices and tracking procedures were identified by this research. The number of combinations of circumstances make the development of a manual model extremely difficult at this stage of the research.

Recommendation - For a meaningful decision-assisting model to be developed, an intensive study of the decision process should be made. The complexity of the variables will probably require application of data processing techniques.

B. AREAS FOR FURTHER RESEARCH

There are many aspects of the delinquency problem in need of further study. Some suggested areas are as follows:

1. Is contract administration cost-effective and what are possible alternatives?
2. What is the extent of schedule buy-in by contractors and what methods can be instituted to more accurately identify and utilize current lead times for materials and components?
3. What is the true effectiveness of contractual and extra-contractual incentives in reducing delinquency?
4. What methods can be utilized to increase the effectiveness and use of the pre-award survey?
5. What is the current condition of the Government's technical data packages and how can they be updated?
6. What are the total costs to the Government of delinquent deliveries?
7. Are the current Defense Materials and Priorities Systems effective and what changes might be recommended?
8. Are the current arrangements of authority and responsibility for certificates of competency effective, and if not, what changes might be made?
9. Can a computer-model be created to aid decision-making in delinquency situations?

C. CONTRIBUTION OF THE STUDY

This study has provided a base for further research into the problem of delinquent deliveries of items under contract. Significantly greater amounts of in-depth research

need to be made into the various aspects of delinquency. Additionally, greater amounts of attention need to be placed on the delinquency problem. This study has provided a comprehensive look at the extent, impacts, causes and remedies involved in the problem of delinquent deliveries. A heightened awareness of the various aspects of delinquency will aid management in formulating and applying effective corrective actions to the problem.

APPENDIX A

Interview Questions

1. What is the estimated extent, in both percentage and dollar terms, of delinquent deliveries of goods in DoD production contracts?
2. What is your goal or standard for delinquent deliveries (in percentage or dollar terms)?
3. How was this goal or standard established?
4. What do you perceive to be the impact of delinquent deliveries to government, prime contractors and sub-contractors?
5. What are the causes of delinquent deliveries, in both general and specific terms, within the classifications of government caused, contractor caused, and other? (in order of importance)
6. Is there any particular contract type that has been experiencing delinquency problems?
7. Is there any specific type or classification of equipment that has been experiencing delinquency problems?
8. Is there any specific class of contractor, large, medium, small, minority, etc., that has been experiencing delinquency problems?
9. What methods are used, or signals looked for, to predict or evaluate the possibility of delinquent deliveries?
10. When it becomes apparent that the required delivery will not be made on schedule, what considerations are given to allowing the schedule to change as opposed to terminating the contract? Why?
11. Same question as above, but to disallowing a schedule change? Why?
12. If a schedule change is allowed, what damages are assessed or adjustments in consideration are made in the contract provisions?

13. How and when are they determined?
14. In delinquency situations, how often has termination for default been seriously considered?
15. How often was it actually used?
16. When termination for default was considered and rejected, why was it rejected?
17. What are the established procedures to control or reduce delinquent deliveries, in both pre-award and post-award phases of the contract?
18. How well do they work?
19. Why are they used?
20. Who is involved with them, and to what extent?
21. Are different procedures desired or needed? If so, what are they?
22. What procedures, outside of the established ones, are used to control or reduce delinquent deliveries, in both pre-award and post-award phases of the contract?
23. How well do they work?
24. Why are they used?
25. Who is involved with them, and to what extent?
26. What internal control or tracking procedures are used to monitor schedule performance?
27. How effective are they?
28. Who monitors them?
29. What do you perceive to be the contractual or extra-contractual incentives to meet scheduled deliveries in a competitive environment?
30. In a sole source environment?
31. How effective are the incentives?
32. How do you check the plan for meeting delivery schedules when letting a contract?

33. How does the prime or subcontractor establish a plan for meeting delivery schedules?
34. How do you establish required delivery dates?
35. What do you anticipate the future trend to be in delinquent deliveries? Why?
36. What do you anticipate the future trend to be in control procedures? Why?

APPENDIX B

Interviewees

1. Askew, Robert L., Industrial Specialist, Production Division, Contract Management Directorate, DCAS, interview granted 19 January 1980.
2. Broadaway, Thomas, COL, USA, Chief of Procurement Directorate, ARRCOM, interview granted 18 January 1980.
3. Church, Philip S., Industrial Specialist, Production Services Branch, Contracting Directorate, DLA, interview granted 19 January 1980.
4. Conklin, James A., Chief of Production Services Branch, Contracting Directorate, DLA, interview granted 19 January 1980.
5. Downour, D. Wayne, LTC, USA, Assistant Branch Chief of Production Services Branch, Contracting Directorate, DLA, interview granted 19 January 1980.
6. Gushard, Laverne N., Chief of Production Management Branch II (Combat Vehicles), Production Division, Procurement and Production Directorate, TARCOT, interview granted 17 January 1980.
7. Hershberg, Stephan, Contract Specialist, Primary Support Division, Procurement Directorate, ARRCOM, interview granted 18 January 1980.
8. Hudgins, Elliot, Chief of Production Management Branch I (Tactical Vehicles), Production Division, Procurement and Production Directorate, TARCOT, interview granted 17 January 1980.
9. Kosch, Charles A., CDR, SC, USN, Director of Contract Management Division, Naval Material Command, interview granted 14 January 1980.
10. Meyer, Gary L., Chief of Heavy Weapons Branch, Procurement Directorate, ARRCOM, interview granted 18 January 1980.
11. Rattigan, John, Production Specialist, Procurement and Production Directorate, DARCOT, interview granted 14 January 1980.

12. Scheibler, Herbert, Chief of Intensive Procurement Action Branch, Procurement Directorate, ARRCOM, interview granted 18 January 1980.
13. Schenck, John, Deputy Chief of Production Division, Contract Management Directorate, DCAS, interview granted 19 January 1980.
14. Voldrich, Joseph, Chief of Production Division, Procurement and Production Directorate, TARCOT, interview granted 17 January 1980.
15. Webb, Everett C., CPT, USAF, Manufacturing Engineer, Manufacturing Engineering Division, Directorate of Manufacturing, AFSC, interview granted 16 January 1980.
16. Welch, Roland W., Chief of Primary Support Division, Procurement Directorate, ARRCOM, interview granted 18 January 1980.
17. Windle, A. L., Industrial Specialist, Procurement and Production Directorate, DARCOM, interview granted 18 January 1980.

APPENDIX C

Definitions, Abbreviations and Acronyms

ACO	-	Administrative Contracting Officer
AFSC	-	Air Force Systems Command
ARRCOM	-	U. S. Army Armament Material Readiness Command
CLINS	-	Contract line item numbers.
Contract Modification	-	(DAR 1-201.2) - "any written alteration in specification, delivery point, rate of delivery, contract period. . ."
DAR	-	Defense Acquisition Regulations
DARCOM	-	U. S. Army Material Development and Readiness Command
DCAS	-	Defense Contract Administration Services
DCASMA	-	Defense Contract Administration Services Management Area
DCASR	-	Defense Contract Administration Services Region
Delinquency	-	(DAR 25-101.3) - "includes (i) actual failure by the contractor - that is, his failure, regardless of reason, to meet the contract delivery or performance schedule and (ii) potential failure by the contractor - that is, his failure, regardless of reason, to maintain such progress in contract performance as is required to meet his contract delivery or performance schedule."
DLA	-	Defense Logistics Agency
DMS	-	Defense Materials System
DoD	-	Department of Defense
DPS	-	Defense Priorities System

ECP - Engineering Change Proposal

Excusable Delay - (DAR 7-203.11) -
occurs if ". . . failure (to meet delivery schedules) arises out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to: acts of God or the public enemy; acts of the Government in either its sovereign or contractual capacity; fires; floods; epidemics; quarantine restrictions; strikes; freight embargoes; and unusually severe weather; but in every case the failure to perform must be beyond the control and without fault of the Contractor."

GFE/GFM/GFP-Government Furnished Equipment/Material/Property

Government Delay of Work - (DAR 7-104.77(f)(a)) -
occurs when ". . . the performance of all or any part of the work is delayed or interrupted by an act of the Contracting Officer in the administration of this contract, which act is not expressly or impliedly authorized by this contract, or by his failure to act within the time specified in this contract (or within a reasonable time if no time is specified . . .)"

NAVMAT - Naval Material Command

PCO - Procuring Contracting Officer

Production Surveillance - (DAR 25-101.1) -
". . . that part of Government contract administration directed towards (i) determining the degree of progress made by the contractor in meeting his delivery or performance schedule and (ii) identifying factors which may delay delivery or performance."

QA - Quality Assurance

RDD - Required Delivery Date

TARCOM - U. S. Army Tank-Automotive Material Readiness Command

LIST OF REFERENCES

1. Ammer, Dean S. Materials Management, Homewood, Ill.: Richard D. Irwin, Inc., 1974.
2. Armed Services Procurement Regulation Manual for Contract Pricing. Chicago: Commerce Clearing House, Inc., 15 September 1975.
3. Contract Administration. Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, 1975.
4. Candy, Harold F., Brannon, Richard C. and Carter, Shirley H. "Delivery Performance Indicators." Research paper, APRO 509-4, U.S. Army Procurement Research Office, April 1977.
5. Corey, E. Raymond. Procurement Management: Strategy, Organization, and Decision Making. Boston: CBI Publishing Co., 1978.
6. Davis, Allan S. "An Investigation of Selected Business Indicators as Related to Aerospace Materials Leadtime." Research paper, Air Command and Staff College, Maxwell Air Force Base, Alabama, May 1975.
7. DoD Contract Management Conference: Impact '73. Report of Panel 10, "Production and Surveillance Reporting.", Dallas, 1968.
8. Department of Defense. Defense Acquisition Regulation. 1976 Edition (Washington, D.C.: U.S. Government Printing Office).
9. Department of Defense. Incentive Contracting Guide. 19 January 1965 (Washington, D.C.: U.S. Government Printing Office).
10. Department of Defense and National Aeronautics and Space Administration. Incentive Contracting Guide. October 1969 (Washington, D.C.: U.S. Government Printing Office).
11. Ganster, Joseph M. "The Dilemma of Delinquencies." Contract Management, January 1980, pp. 13-15.
12. Government Prime Contracts and Subcontracts Service. Covina, CA.: Procurement Associates, Inc., 1967.

13. Montgomery, W. R. "Monitoring the Government/Industry 'Partnership'." Defense Systems Management Review, Vol. 1, No. 7-8 (Autumn 1978): pp. 28-36.
14. Nassr, Michael A. "Past Performance: An Essential Element in Source Selection." Defense Systems Management Review, Vol. 1, No. 7-8 (Autumn 1978): pp. 7-14.
15. Pace, Dean Francis. Negotiation and Management of Defense Contracts. New York: Wiley-Interscience, 1970.
16. Riemer, W. H. Handbook of Government Contract Administration. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1968.
17. Westing, J.H., Fine, I.V., and Zenz, Gary Joseph. Purchasing Management: Materials in Motion. New York: John Wiley & Sons, Inc., 1969.
18. "Why the U.S. Can't Rearm Fast." Business Week, February 4, 1980, pp. 80-86.

BIBLIOGRAPHY

- Buffa, Elwood S. Basic Production Management. New York: John Wiley & Sons, Inc., 1975.
- Buffa, Elwood S. Modern Production Management: Managing the Operations Function. Santa Barbara, California: John Wiley & Sons, Inc., 1977.
- Colley, John L. Jr., Landel, Robert D. and Fair, Robert R. Production, Operations, Planning and Control. San Francisco: Holden-Day, Inc., 1977.
- England, Wilbur B. and Leenders, Michael R. Purchasing and Materials Management. Homewood, IL: Robert D. Irwin, Inc., 1975.
- Government Contract Law. Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, 1975.
- Government Contracts Reporter. Chicago: Commerce Clearing House, Inc., 1978.
- Headquarters Department of the Army. Army Procurement Procedure. 3 May 1976 (Washington, D.C.: U.S. Government Printing Office).
- Hollander, Gerhard L. "Integrated Project Control: Control Cost, Schedule, and Performance for Maximum Profit!". National Contract Management Journal, Vol. B, No. 2, (Fall 1974): pp. 75-94.
- Lee, Lamar Jr., and Dobler, Donald W. Purchasing and Materials Management: Text and Cases. New York: McGraw-Hill Book Company, 1977.
- Nash, Ralph C. Jr. and Cibinic, John Jr. Federal Procurement Law. Washington, D.C.: The George Washington University, 1967.
- Newlin, Kimrey D. and Lovett, Edward T. "Procurement Administrative Leadtime (PALT) Management and Performance Criteria." Research paper, U.S. Army Procurement Research Office, March 1977.

DISTRIBUTION LIST

	No. Copies
1. Defense Technical Information Center Camron Station Alexandria, Virginia 22314	2
2. Library, Code 0142 Naval Postgraduate School Monterey, California 93940	2
3. Department Chairman, Code 54 Department of Administrative Science Naval Postgraduate School Monterey, California 93940	1
4. Asst. Professor D. V. Lamm, SC, USN Thesis Advisor/Code 54LT Department of Administrative Science Naval Postgraduate School Monterey, California 93940	5
5. Asst. Professor Dan Boger Code 54BK Department of Administrative Science Naval Postgraduate School Monterey, California 93940	1
6. Defense Logistics Studies Exchange U. S. Army Logistics Management Center Fort Lee, Virginia 23801	1
7. CPT Glen B. Dunbar III, SC, USA 1455 Arlington Drive Florissant, Missouri 63033	3
6. Mr. Philip S. Church Production and Pre-award Specialist Room 4B145 Defense Logistics Agency Camron Station Alexandria, Virginia 22314	2
9. Mr. Roland Welch Chief of Primary Support Division ATTN: DRSAR-PCS Procurement Directorate U.S. Army Armament Material Readiness Command Rock Island, Illinois 61201	1
10. Dean of Research, Code 012 Naval Postgraduate School Monterey, California 93940	1

Thesis
D78875
c.1

Dunbar

190347

Identification of
causes and analysis of
techniques for reduc-
ing delinquent deliv-
eries in Department of
Defense production
contracts.

FEB 21 85
MAR 7 85
14 APR 87

31930

Thesis
D78875
c.1

Dunbar

190347

Identification of
causes and analysis of
techniques for reduc-
ing delinquent deliv-
eries in Department of
Defense production
contracts.

thesD78875

Identification of causes and analysis of



3 2768 001 89555 0
DUDLEY KNOX LIBRARY